Chemical Week

June 21, 1952

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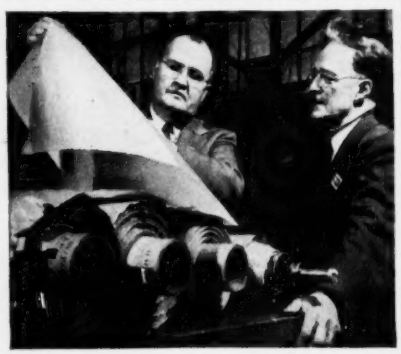

Here's what attracts men to chemical jobs: higher wages, steady work, safety . . . . . p. 13

OTS's Green: Fears Federal domination of research unless industry cooperates, restrains . . . . p. 31

Slick shipping trick: by trailer by ship . . . . . p. 41

Sell 55 million car owners: that's goal of new specialty makers' group . . . . . p. 49

Three companies vie for $30 million mica market; assets: U.S.-made, uniform, big sheets . . . . . p. 59

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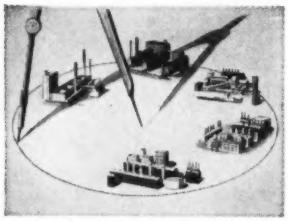

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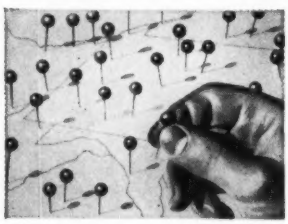

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Chemical Week

Volume 70 Number 25

June 21, 1952

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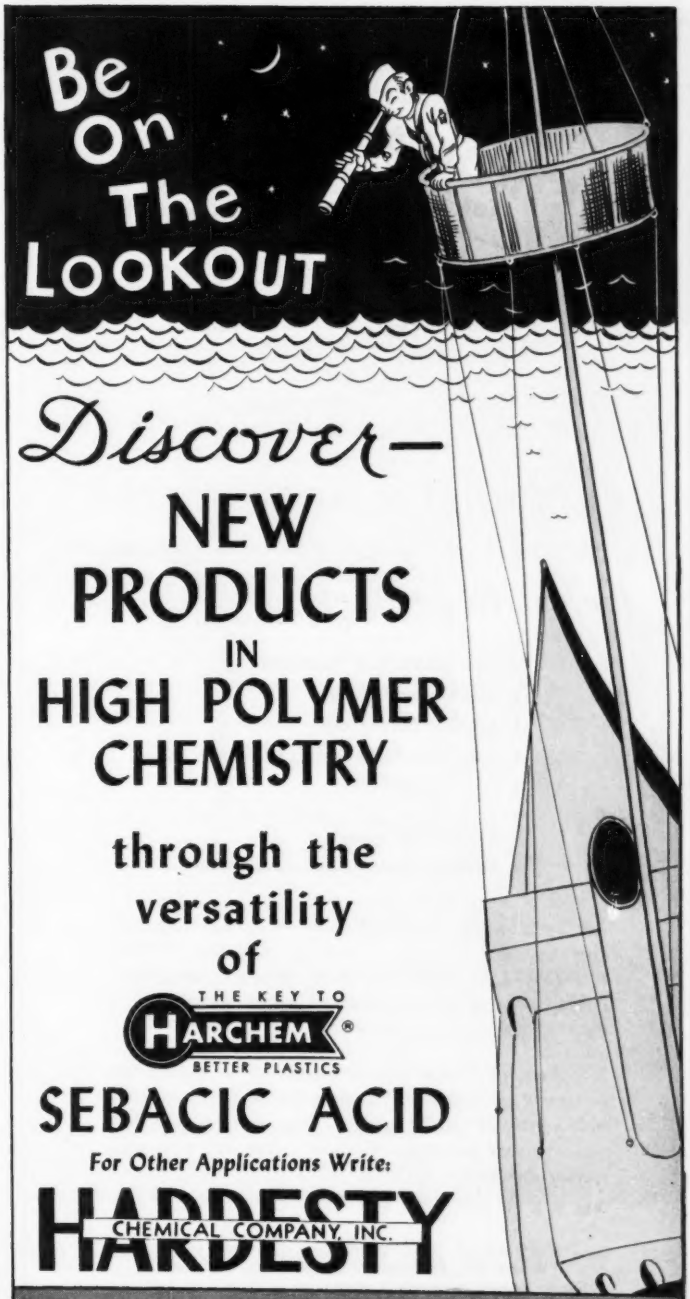
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RESEARCH

OPINION . . . .

Spade it In

To THE EDITOR: As a strictly amateur gardener with chemical engineering background (some 29 years ago), I have been much interested in the subject of soil conditioners, but with the advent of a new conditioner every other week, have become increasingly confused on the subject.

Your editorial on soil conditioners (June 7) inspires the following verse, which perhaps expresses the opinion of many in regard to these soil conditioners:

For gardening try Supercillium
When added to soil
Brings it to a boil
Thus first grows, cooks, then eats,
Digests and repeats
All vegetables, grass and Sweet William.

D. M. GRAY
Vice president
Stoner-Mudge, Inc.,
Pittsburgh, Pa.

Take It Easy

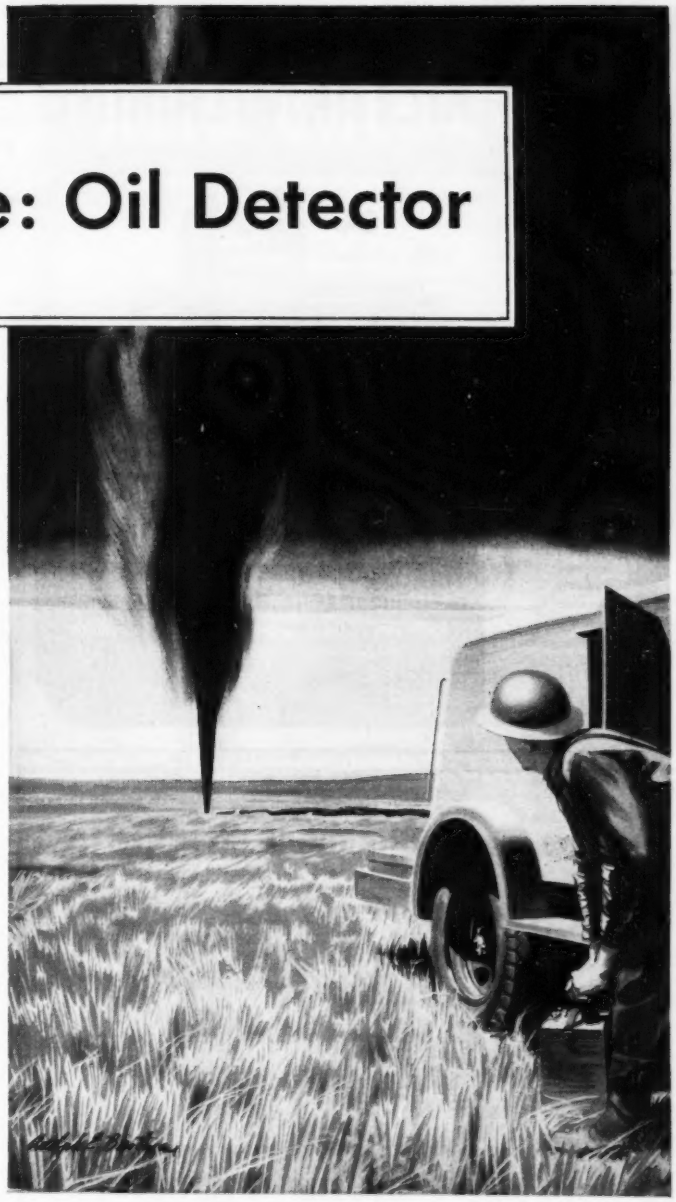
To THE EDITOR: . . . Your editorial "Overselling is Dangerous" (June 7) points up clearly and plainly some of the heavy waters which chemical and chemical specialties makers will head into if some of them do not curb the inclination to shower the public with wild superlatives. Soil conditioners are, in my opinion, just one instance—and, serious though this situation may be—it seems to be that it highlights a trend and one which can be disastrous to the chemical industries . . . may mean that the public will lose faith in both chemical and chemical specialties manufacturers . . . disregard everything that they say . . .

If you care to take a look at what is going on in anti-TB drugs as an example . . . you will see a simply shameful soap opera performance. It is doubly grim because it can raise false hopes in the hearts of a lot of people . . . and why a government agency does not crack down, and crack down hard, on this sort of thing, I can't understand.

Perhaps less harmful, but certainly just as ludicrous, is a lot of this nonsense about chlorophyll. I have seen advertisements of chlorophyll in just about everything . . . and so many of the claims are just plain silly that I find it nothing short of revolting . . .

Chemists, chemical engineers and scientists in general have built, over the decades, a solid reputation for being sound people, rational and intelligent and certainly responsible. It

Dynamite: Oil Detector



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. . . to help professional oil "prospectors", or seismograph recording crews, to obtain more accurate subsurface surveys of prospective oil fields.

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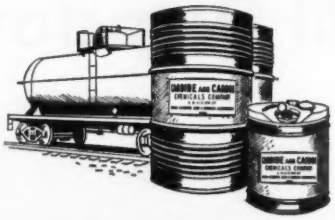

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OPINION . . . . . .

is nothing short of deplorable to see the efforts of many, the fruits of much endeavor, dashed by irresponsible and giddy promotion . . .

We have more to offer the world than mere huckstering . . . we should caution those who threaten to undermine our industry and professions . . .

JACK BERKONITZ
Cleveland, Ohio

Science of Soil

TO THE EDITOR: I want to thank you for printing in your May 24th issue my letter pertaining to the neglect of the science of soil stabilization which you judiciously slenderized by cutting some of the bulk . . .

Unfortunately, two typographical slips occurred . . . The Volume of Alexander's Colloid Chemistry should be Vol. VI not Vol. V . . . The other concerns Dr. Ernest A. Hauser's name (of MIT) . . . which was misspelled . . .

Accept my apology for neglect in properly checking my own letter for typographical errors . . .

HANS F. WINTERKORN
Princeton, N. J.

CW, which bumbles typographically itself on occasion, is mighty understanding, glad to set the record straight.—ED.

Down the Middle

TO THE EDITOR: We were pleased to see your news article on glass beads in traffic paints ("Right Down the Middle," May 3). This, as you point out, is rapidly receiving recognition as the only safe and sure means for center marking highways.

Our company has pioneered . . . the use of glass spheres in paint. You indicated that we came into this picture second, which, obviously, could not be since we hold patents covering this product. Our trademark for our reflective compound is Centerlite . . .

Keep up your timely reporting of chemical and product developments. CW is a must on my reading list . . .

BERT S. CROSS
Vice President
Minnesota Mining and Manufacturing Co.
St. Paul, Minn.

Thanks, Reader Cross. Our inference developed from the issuance of patents to 3M on Nov. 13, 1951. However, in response to our query Reader Cross points out that these two patents (2,574,971; 2,574,972) were applied for in 1945 and 1949, and "a consid-

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USE this handy reference to save time in selecting high quality chemicals.

HOOKER ACID CHLORIDES

SULFURYL CHLORIDE

Synonym: Sulfuric Oxychloride
Formula: SO_2Cl_2
Appearance: Light yellow liquid

TYPICAL PROPERTIES

Molecular Weight	135.0
Pour Point	below −54°C
Distillation Range	2° incl. 69.5°C
Specific Gravity, 15.5°/15.5°C	1.680
SO_2Cl_2 Content	99% Min.

USES

Chlorinating Agent: In the production of chlorophenol, chlorothymol, pharmaceuticals, dyestuffs; reacts with organic acids to form chlorides and anhydrides.

THIONYL CHLORIDE

Synonym: Sulfurous Oxychloride
Formula: $SOCl_2$
Appearance: Clear, pale yellow to red liquid

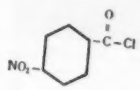
TYPICAL PROPERTIES

Molecular Weight	119.0
Pour Point	−75°C
Distillation Range	75° to 78°C
Specific Gravity, 15.5°/15.5° C	1.640
$SOCl_2$ Content	97.5% Min.

USES

Chlorinating Agent: To replace various groups with chlorine. Among end products are: isoamyl chloride, synthetic pyrethrum, phenyl propyl chloride and synthetic Vitamin A palamitate, antihistamines.

PARANITROBENZOYL CHLORIDE



Formula: $NO_2C_6H_4CO\,Cl$
Appearance: Yellow crystalline lumps or flakes

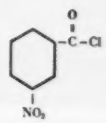
TYPICAL PROPERTIES

Molecular Weight	185.5
p-Nitrobenzoyl Chloride	97%
Melting Point	70.5°C
Distillation Range at 105 mm	202° to 205°C

USES

End Products: Procaine, dyestuffs

METANITROBENZOYL CHLORIDE



Formula: $C_6H_4NO_2CO\,Cl$
Appearance: Yellow to brown liquid, partially crystallized

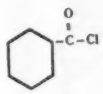
TYPICAL PROPERTIES

Molecular Weight	185.5
Last Crystal Point	28° to 31°C
Distillation Range	275° to 278°C

USES

End Products: Dyestuffs for fabrics and color photography; pharmaceuticals.

BENZOYL CHLORIDE



Formula: $C_6H_5CO\,Cl$
Appearance: Clear, colorless to light yellow liquid

TYPICAL PROPERTIES

Molecular Weight	140.5
Freezing Point	−0.9°C
Boiling Point	197.3
Specific Gravity, 15.5°/15.5°C	1.219
Benzoyl Chloride	99%

USES

End Products: Intermediates, dyes, perfume bases, pharmaceuticals, polymerization catalysts, flour bleaching agents, plasticizers, resins, etc.

Specific Compounds: Benzyl benzoate, benzoyl peroxide, benzophenone and others.

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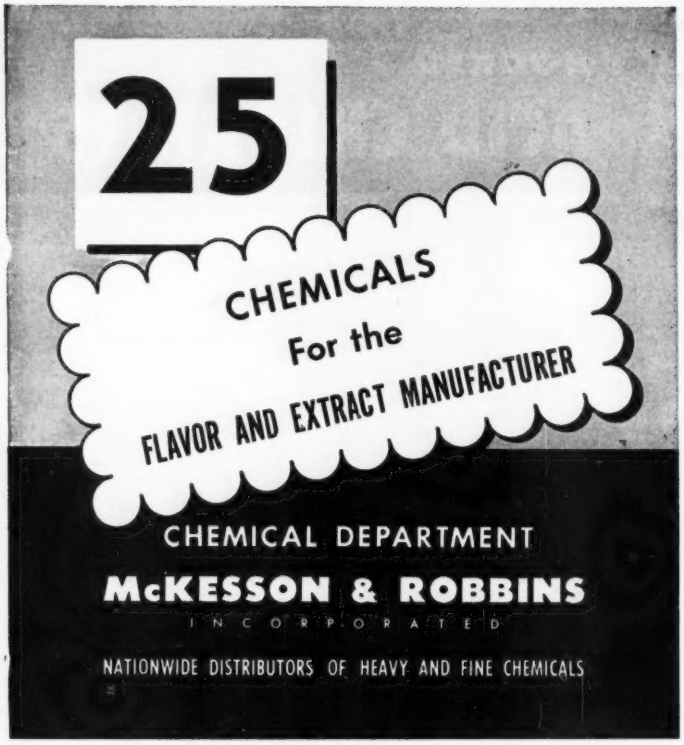


OPINION . . . . . .

erable amount of work was done before patents were applied for."—ED.

Unique Additive

TO THE EDITOR: . . . I have read your news article on lube additives ("Fortified for Service," June 7) very carefully . . . it is most interesting to us . . .

Perhaps you would be interested to know that a little over a year ago our company became affiliated with Champion Products, Inc. (Stephenville, Texas) . . . which produces what we believe is the only undersurface lubricant in the world. The original formula came from Germany . . . It is called Pylon Q-X, is composed of three naphthenic base oils, one paraffin base Pennsylvania oil, ethyl-ether concentrate (2% by volume) and the "Q-X" chemical which is vaccylisocryptene . . .

Prior to 1951 Q-X had been sold largely to industrial users and for aircraft. We have now spent some nine months introducing it to the automotive field . . . have 300 distributors . . .

Ours is a unique additive for internal combustion engines . . . and I use the word "unique" deliberately . . . it is the only one of its kind . . . an undersurface lubricant . . .

EARLE A. GOODENOW
Goodenow-Morley Co.,
Oklahoma City, Okla.

Coming Up Fast

TO THE EDITOR: Let me congratulate you on your brief but to-the-point coverage of the Chemical Institute of Canada meeting (June 14). Our chemical industry is small by U. S. standards, but our natural resources and technical skills—abetted by knowledgeable governmental policies—augur for fast but firm growth in the next few decades. In a sense, our unexploited mineral wealth is the United States' "last frontier," and the coming years should see close cooperation between inexhaustible (it seems to us) U. S. capital and inexhaustible (it seems to both of us) Canadian materials. Such cooperation cannot but make both of us stronger in a world that needs to be strong.

NORMAN KLEIN
Toronto, Ont.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: The Editor, Chemical Week, 330 W. 42nd St., New York 18, N. Y.

BOOKS . . . .

Chemical Engineering Techniques, by B. E. Lauer and R. F. Heckman. Reinhold Publishing Corp., New York, N.Y.; v+496 pp., $6.

Text stressing the techniques rather than the equipment going into chemical manufacturing operations. Using a qualitative approach in discussing problems of design or operation, the authors organize the various techniques on a functional basis in line with the objective desired and skip lightly over the quantitative factors.

Oxidation Potentials, second edition, by Wendell M. Latimer. Prentice Hall, Inc., New York, N.Y.; 392 pp., $10.

Treatise presenting collection of thermodynamic data—drawn both from literature on the subject and the author's own experimental work—and explaining its significance in interpreting inorganic chemical phenomena. The author reviews the basic concepts of free energy, entropy, potential values and equilibrium constants.

Briefly Listed

PRINCIPLES AND PRACTICE OF FLOW METER ENGINEERING, seventh edition by L. K. Spink, 418-page handbook of tables, curves and text, designed as a guide to correct methods of measuring flow. From The Foxboro Co., Foxboro, Mass., $7, alone, or $27, in combination purchase with flow rule.

RUSSIAN HYDROCARBON REPORTS, an English translation of a series of seven papers on the synthesis of hydrocarbons, covering research conducted in the N. D. Zelinsky Laboratory of Organic Chemistry, and originally published in the *Journal of General Chemistry of the USSR.* Consultants Bureau, 152 West 42nd St., New York, N.Y.; $5 per paper, the entire set, $20.

MEETINGS . .

Div. of Analytical Chem., annual summer symposium, Michigan State College, East Lansing, June 20-21.

Forest Products Res. Soc., annual meeting, Schroeder Hotel, Milwaukee, Wis., June 23-25.

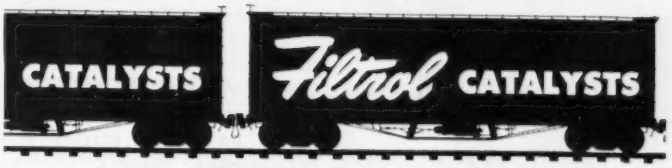
Mfg. Chemists Assn., joint meeting with SOCMA, Greenbrier Hotel, White Sulphur Springs, W. Va., June 23-25.

Synth. Org. Chem. Mfrs. Assn. of the U.S., annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., June 23-25.

Amer. Soc. for Testing Materials, annual meeting, Statler & New Yorker Hotels, June 23-27.

FOR **CHEMICAL** PROCESSES

FOR **CHEMICAL** PROCESSES



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Powder Sizes	from 10% to 50% 0-20 micron
Surface Area	from 50 to 500 sq. meters per gram
Water Content	from 4% to 22%
Attrition Resistance	from medium to very high
Porosity	from 0.3 to 0.6 pore volume ml. /gm
Promoters Impregnation	from non-impregnated to highly impregnated
Activity	from specific high or low to non-specific high or low

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$Cl_2CH\ COOCH_3$

methyl dichloroacetate

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purity	• 99.0% minimum
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specific gravity	• 1.3759-1.3839 at 20°/20°C
refractive index	• 1.4374-1.4474 at 20°D

typical reactions

$Cl_2CHOOCH_3 + 2NaOC_2H_5 \longrightarrow (C_2H_5O)_2CHCOOCH_3 + 2NaCl$
sodium ethylate — methyl diethoxyacetate

$2Cl_2CHCOOCH_3 \xrightarrow{\text{catalyst}} Cl_2C(CCl_2COOCH_3)COOCH_3 + H_2$
methyl tetrachlorsuccinate

$Cl_2CHCOOCH_3 + C_6H_5CHO \xrightarrow{\text{Mg amalgam}} C_6H_5CH_2COCOOCH_3 + Cl_2$
benzaldehyde — methyl phenylpyruvate

$Cl_2CHCOOCH_3 + RCH = CH_2 \xrightarrow{\text{catalyst}} RCH_2CH_2CCl_2COOCH_3$
subst. ethylene — methyl α-dichloro-γ-subst. butyrate

$Cl_2CHCOOCH_3 + 2CH_2(COOCH_3)_2 \xrightarrow{Na} CH_3OOCCH[CH(CO_2CH_3)_2]_2 + 2HCl$
dimethyl malonate — α-di-γ-di-β-mono-carbomethoxy propane

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NEWSLETTER

If you're concerned about raw materials to feed our ever-hungrier chemical process industries, keep your eyes open next week for the report of the President's Materials Policy Commission.

Many of its conclusions are obvious—that the U.S. is the free world's largest consumer of materials, that our production of many vital minerals is already short of demand.

But significant to industry is the Commission's look at 1975. By then, according to its projections, we may be 20% short of the materials we need (compared with 9% in 1950, 15% surplus in 1900). Many commodities now exported will then have to be imported.

These figures will revise industry thinking, may shift patterns, will certainly call for a hard look at current long-range plans.

Some of these materials problems will be harder to solve than others. Defense Materials Procurement Agency head Jess Larson says, for instance, that the 1955 goal of 50,000 tons annual output of spodumene—principal source of lithium chemicals—can be met with very little government assistance.

Also tied in to the materials picture is the Bureau of Mines' new $2.6 million experiment station at Morgantown, W. Va., contract for which was signed last week.

Synthesis gas from coal—for liquid fuels, ammonia, alcohol and other chemicals—will be a major project of the station.

Heartening news on the labor front is the amicable wind-up of negotiations between Solvay Process Division and District 50 of the United Mine Workers at Syracuse, N.Y. The contract expired last week, but both sides agreed to an extension until a new agreement is ratified.

Terms of the tentative contract haven't been disclosed, but indications are that it may set a new pattern for fringe benefits in the chemical industries. Union leaders have recommended acceptance of the contract; and if the workers go along there won't be a repetition of the strike that tied up the soda ash industry in 1950.

"Petroleum" is a fighting word to the Distillery, Rectifying and Wine Workers International Union. Convening in Cincinnati last week, it sent resolutions to the government protesting against placement of alcohol contracts with the petroleum industry.

Union President Joe O'Neill pointed out that oil refineries are already operating at capacity, while high taxes on beverage alcohol have knocked the distillers for a loop.

The two words ". . . and petroleum" are similarly fighting words to Imperial Oil Co. and Canadian Pacific Railways. They were omitted by error from a land title assigning coal and oil rights, and the landowner is now a cool $1 million richer. But the fight's not over: The Alberta Supreme Court decided for the landowner, but the case will be appealed.

Big process news of the week is National Aniline's decision to build a plant south of Moundsville, W. Va., to make aniline and nitrobenzene by a newly developed, continuous, catalytic process.

The plant will be adjacent to Solvay's new facilities, will use Solvay-generated hydrogen.

National Aniline will soon start construction, hopes to complete it early next year. DPA has granted a 60% fast write-off on the $2.3 million project.

The National Aniline-Solvay tie-up marks another step (cf. CW, June 14) in Allied Chemical & Dye's integration of its units.

The U. S. Department of Labor late last week made official the new wage floors in Puerto Rico's chemical, petroleum and related industries (CW Newsletter, May 31).

The new rates are 75¢ an hour for fertilizers, hormones, antibiotics and related products, replacing 40¢ for fertilizers, 32¢ for the other three groups. The new rate for "general" work is 51¢, replacing current rates of 25¢, 32¢ and 40¢.

Three unrelated but coincidental events last week pointed up the fast-growing chemical industry's inability to finance expansion out of tax-decimated profits, its forced reliance on debt capital:

- Dow Chemical drew the final $60 million of a loan previously negotiated with insurance company lenders.
- American Cyanamid obtained $18 million out of a $75 million borrowing arranged earlier with almost a score of institutional lenders.
- Commercial Solvents withdrew $7 million, leaving $8 million still available from a $25 million loan lined up last September.

The U. S. Court of Appeals acted quickly on Atlas Powder's motion to stay the effective date of the government's order banning Myrj 45 (polyoxyethylene softener) from bread (CW Newsletter, June 14).

A stay was granted. FSA's order won't apply to Myrj 45 until the Court has completed action on Atlas' petition for review of those sections of the order affecting the firm's products.

Hearing on the petition has been set for the week of October 6. That means Atlas is permitted to sell its product to bakers until a decision is handed down after the October hearing.

Glyco Products Co. received a stay on its similar product, Sta-Soft. Whatever decision is made will likely apply to both materials.

The government also displayed interest in a different product this week: polyvinyl pyrrolidone.

Armed Services Medical Procurement Agency contracted to buy 1,200,000 pints of PVP suspension from Schenley Laboratories for the Civil Defense Administration stockpile.

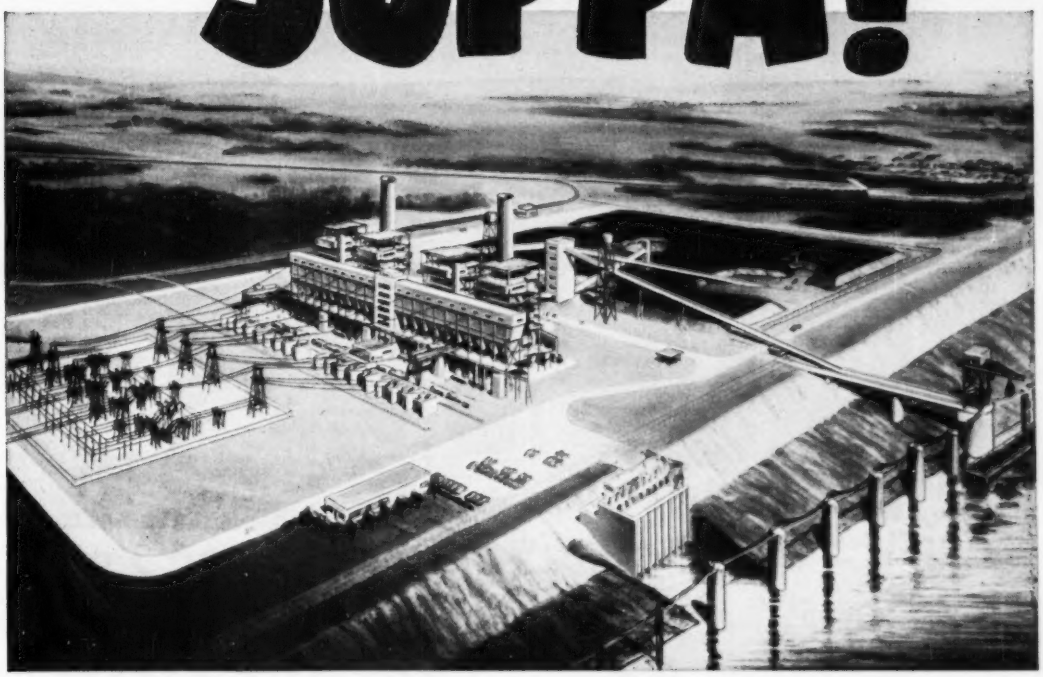
This marks the first governmental purchase of PVP as a blood plasma extender, although it has been buying dextran from R. K. Laros (Dayton) and Commercial Solvents.

Schenley's German-made PVP may soon compete with General Aniline's domestic product; and other makers—J. T. Baker and Dextran Corp.—may get a corner of the dextran business.

Dextran currently has a head start on PVP: It's approved for military use.

. . . The Editors

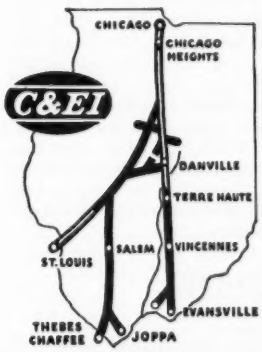
what's JOPPA?



New electric generating station at Joppa, Illinois.

It's a fabulous new power center

——AND MORE. JOPPA HAS:



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for American Stores Co. GRAVER fabricates 20 Giant Silos

AT WORLD'S LARGEST AUTOMATIC BAKERY

For American Stores' new 17-acre bakery and warehouse in Philadelphia, Graver supplied twenty bins where flours and sugars, conveyed by air suction from specially designed hopper railroad cars, are stored in readiness for automatic mixing. This air-conveyor system—of which the Graver silos are a part—is the first of its kind in any automatic bakery. The battery of Graver-built storage bins has a capacity of 1,200 tons. Each bin is 8′ in diameter and 90′ high.

It is significant that American Stores should turn to Graver to fabricate these high steel structures, since it indicates once again the wide range of industries which regularly recognize Graver's leadership as a manufacturer of storage vessels of all kinds. Fabricated with utmost care, these bins are one more example of the quality craftsmanship and individual attention which characterize every Graver product.

AMERICAN STORES CO.

Since its incorporation in 1917, the American Stores Company has grown into an organization of over 700 self-service markets and over 1,200 stores employing about 18,000 persons in seven eastern States and the District of Columbia. The 17-acre Philadelphia bakery and warehouse services 900 of the company's Acme self-service supermarkets and American Stores in eastern Pennsylvania and southern New Jersey.

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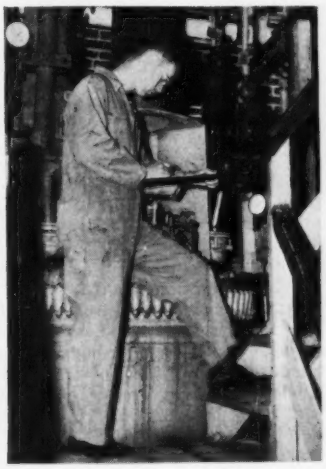
GRAVER

June 21, 1952 • Volume 70 • Number 25

Chemical Week



CAREERS IN CHEMISTRY: Pay, job security, safety—all above average.

On Chemical Jobs: 3 Assets

New report proves that the chemical industry offers its workers substantially more than most other manufacturing industries.

Government figures show that inorganic plant wages run higher than organic plant pay; but both are well above the national average.

Long-term forecast for the industry: Production and employment to keep rising, with production gaining faster than number of workers.

Three big advantages are packaged up with jobs in the chemical industry—higher wages, steadier work, and greater safety than in most other industries.

These collateral assets for workers were spotlighted in a double-barreled article in the Labor Department's Monthly Labor Review, reporting on labor trends in the organic and inorganic branches of the chemicals industry.

Inorganic Pay Higher: According to this article, workers in inorganic chemical plants have been receiving about $3 more per week, on the average, than employes in the organic field. However, earnings in both wings of the industry are well above the national average for factory workers.

Average weekly gross earnings for production workers in January 1952 were listed thus: inorganic chemicals, $75.60; organic chemicals, $71.68; and nation-wide manufacturing, $67.08. Only one segment of the chemical industry—synthetic fiber manufacturing—was mentioned as paying wages slightly lower than the national average. (But fiber plants, located mostly in the South, could claim wage rates topping the regional average.)

Straight-time hourly earnings in the chemical industry in January this year were nearly one-fifth higher than in nondurable goods industries and nearly one-eighth higher than the average for manufacturing as a whole.

Hourly Rates Rising: In both portions of the chemical industry, average hourly pay rates have been mounting steadily since World War II—with the inorganic workers always in front, first by a head and now by a nose.

When the Marshall Plan was launched in 1947, production workers in organic chemistry averaged $1.31 an hour. Their pay rate moved up to $1.43 the next year, then $1.54, $1.62, $1.75 last year and $1.78 in January 1952.

For inorganic production workers, average pay rates walked upstairs like this: $1.38 in 1947, then $1.52, $1.57, $1.66, $1.81 during 1951 and $1.84 in January 1952.

Jobs on Even Keel: "Workers in this industry have relatively steady jobs," the article continued. "There is little seasonal fluctuation and the rates of [hiring and firings] have been consistently lower than in most other manufacturing industries. The level of employment is not closely related to variations in output. Operators and maintenance workers must be on hand to tend the equipment whether or not the plant is producing at full capacity."

Although organic chemical plants employ nearly three times as many workers as inorganic works, the rise and fall of total employment have followed a similar pattern in both divisions of the industry.

Inorganic plants had 47,600 employes in 1939 and 71,200 in June 1942, at the peak of World War II. Their personnel strength slipped to a post-war low of 58,700 in November 1945, but climbed to an all-time high of 84,100 in December 1951.

Organic chemical workers numbered 110,500 in 1939 and 290,400 in 1943, the middle of the war. Employment dropped to 192,100 in 1949, but was back up to 234,500 in January 1952.

Save on Band-Aid: "Injury-fre-

quency rates in the chemicals industry have been consistently lower than the average for manufacturing as a whole," the Bureau of Labor Statistics declared. Figured as the average number of disabling work injuries for each million employee-hours worked, these rates in 1950 were:

For all manufacturing industries, 14.7 injuries; industrial chemicals as a whole, 9.5 injuries; plastics materials, 7.0 injuries; explosives, 3.8 injuries.

In both factions of the industrial chemicals domain, the researchers predicted "a continued long-term upward trend of both production and employment." They added, however, that "as in the past, production probably will increase at a faster rate than employment."

EXPANSION . . . .

Cellulose and its derivatives were in the news this week, with several expansions starting or resuming.

- Celanese, which had suspended its $20 million expansion of cellulose acetate and staple fiber facilities at Rock Hill, S.C., due to poor textile business conditions (*CW, Mar. 22*), has resumed the program.
- Rayonier, Inc., has begun construction of its $25 million Doctortown, Ga., mill which will produce 250 tons per day of chemical wood pulp.
- Stauffer Chemical is beginning work at Salco, Ala., on a $1 million plant to manufacture carbon bisulfide. The plant is located near the Courtaulds rayon plant, also abuilding.

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Sulfur: Shell Oil of Canada will have opened Alberta's first sulfur recovery unit this week. Located at Jumping Pond, 20 miles west of Calgary, the $500,000 unit is scheduled to produce 10,000 long tons of sulfur per year.

- Freeport Sulphur is in the midst of exploration work near Chacahoula, Louisiana.

•

Thiokol is about to go onstream at Moss Point, Miss., with a $1 million synthetic latices plant.

Speed-up in Utopia

Chemical industry workers in Communist Poland are finding that the peoples' commissars can be as avid for output as were the foremen and supervisors under the old capitalist economy.

Recent documents issued by the Polish government state that the present six-year plan calls for upping industrial production more than 100% while increasing the number of workers by only 65%. The aim is to have six persons doing the work now performed by ten workers.

More Elbow Grease: While contending that most of this productivity increase will come from "full use of technical progress," such as application of chemical methods instead of older systems and replacing batch processes with continuous flow techniques, the Polish government lets it be known that industrial employes are being urged to work harder.

A booklet called "Poland's Six Year Plan, 1950-1955," speaks of "the labor competition movement in which the new socialist attitude towards work finds expression."

"Conscious of the fact that their efforts are directed exclusively toward the common good," this booklet continues, "workers fight for higher labor productivity by means of organized labor competition, greater efficiency and better organization." This would seem to mean that Polish industrial workers are encouraged to think of themselves as teams trying to out-do their fellow workers in other factories.

Zeal Comes First: Relative importance of the various factors in increasing productivity in Polish industry was indicated in the summation:

"This trend (fulfillment of 1950 goals) was made possible by better use of existing machinery and equipment, by the introduction of new technical methods, and above all by the working class, socialist attitutde toward work of and by the broadening of the labor competition movement. There has not only been an increase in the number of workers engaged in labor competition but also new and higher forms of this competition have been appearing simultaneously with the numerical increase of participants in the movement."

The Polish government is counting on increased productivity to bring about at least a 17% decrease in industrial production costs. This, according to the Communist blueprint, will lead to lower prices of many consumer goods. At the same time, wages and salaries are scheduled to go up, so that real earnings—in terms of purchasing power—will be 40% higher in 1955 than they were in 1949.

"The goals set by the Six Year Plan," Poland soberly concedes, "will not be easy to reach. To meet them will require the solution of many fundamental problems, the application of new methods of work and the use of new means of work."

Rubber Wage Stretch

Ready to pounce on whatever wage formula is worked out in the steel dispute, the United Rubber Workers (CIO) have started annual negotiations with the "Big Four" rubber companies, beginning with Goodrich. Former Goodrich employe Herbert Dawson, heading the union delegation, was playing it cagey as talks began in Cincinnati, but rumors were that the union would be out to get:

- A straight-time hourly pay boost of anywhere from 10¢ to 25¢.
- Union shop set-ups with Goodrich and Firestone (union shop already in effect at Goodyear and U.S. Rubber plants).
- New pension and insurance plans.

Firestone Parley Next: Discussions with Firestone are to begin June 25 at Columbus, and negotiations with Goodyear will start June 27 at Cleveland. Time and place aren't set for the U.S. Rubber debate; last year it was held in New York.

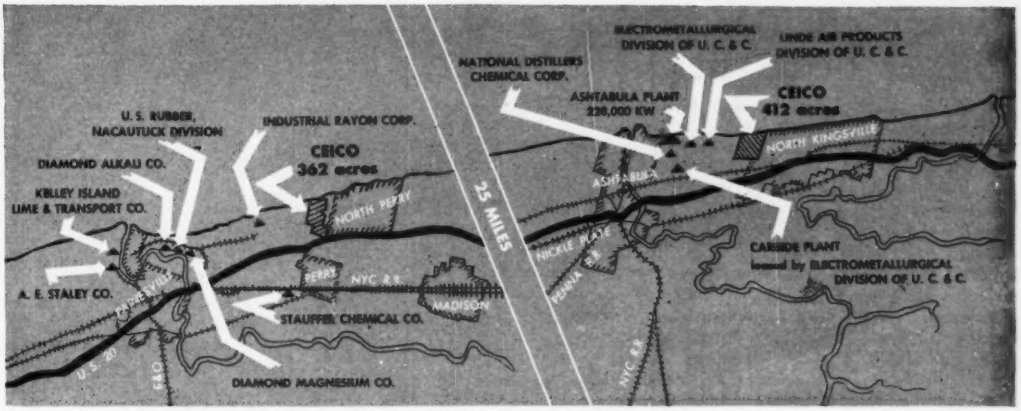
Strategy for both sides this summer seems to be shaping up like this: Go slow, watch what happens in steel, try to spar along on minor issues until the other side gets impatient enough to talk business.

Dawson, a union officer for 15 years and now assistant to the Rubber Workers' president, will be speaking for some 25,000 Goodrich employees covered by the present contract. About half of these workers are at the company's main plant in Akron; the others work in Goodrich plants at Miami, Okla.; Los Angeles; Tuscaloosa, Ala.; Oaks, Pa.; Cadillac, Mich.; and Clarksville, Tenn.

New Union Voices: Two new local presidents will be making their debuts in negotiating. Local 5, at the Goodrich plant in Akron, made nearly a clean sweep of its offices during annual elections last month and installed Kenneth Oldham as president, succeeding George Bass. During his 10 years at the helm, Bass had become a a powerful figure in Ohio unionism.

Taking over at leader of Local 7 is C. V. Richmond, spokesman for most Firestone workers at Akron. Seven other Firestone plants and a total of about 25,000 employes will be involved.

Goodrich talks got under way one day behind schedule because of a last-minute shift in union representatives. Heading the company's bargaining team are L. R. Keltner, director of employe relations, and D. D. Reichow, director of union relations.



CLEVELAND LAKE FRONT: Adjoining chemical plants, two sites to insure more of the same.

Reserved for Industry

Camping along the shore of Lake Erie may be a good way to beat the heat, but once summer camps and bungalows are established, it's hard to reclaim the area for industrial use.

That's what's behind the Cleveland Electric Illuminating Co.'s recent purchase of two parcels of land (412 and 362 acres) along the southern shore near Ashtabula and Painesville. These key plots (*see map*) insure that the area between them and established chemical centers will be reserved for industrial use by the chemical process industries primarily.

CEICO is not going into the real estate business; it will sell the property to industry at cost. But it is not motivated by altruism either. Its purpose is to attract more power consumers to the area.

The company doesn't care whether future occupants put in their own power plants either. For industry brings workers, and CEICO actually makes more money selling power to them for their refrigerators, lights, TV's, etc. than to big industrial consumers.

Rubber Wage Stretch

LABOR

Labor Peace Last Year: The chemical industry enjoyed a relatively peaceful year in 1951 as far as strikes were concerned, the Bureau of Labor Statistics has reported. It lost only one-ninth of 1% of total working time on acount of strikes, while the national average for all manufacturing industries was more than twice that figure. The 67 work stoppages in chemical plants last year resulted in a loss of 201,000 man-workdays, compared to losses of 3,490,000 days in textile mills, 3,370,000 days in machinery factories, and 2,600,000 days in the making of transportation equipment. Principal causes of 1951 strikes: wages, hours & fringe benefits, 45%; other working conditions, 28%; union recognition and other union matters, 21%.

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Truckers End Du Pont Strike: Construction work on the Indiana Ordnance Works at Louisville, Ky., was resumed when President Daniel J. Tobin of the AFL Teamsters Union ordered Local 89 to end its six-day strike. About 75 truckers were picketing the plant, keeping nearly 4,000 construction workers off the job. Issues that caused the strike were referred to a joint board of the AFL Building Trades Department and contractors in Washington. Du Pont has the contract for rehabilitating the plant, and also will operate it when powder production begins this summer.

•

Sgt.'s Grill Generals: In a move to improve understanding of company policies on the lower levels, Dow Chemical's board of directors held a quiz program with supervisors of its magnesium plant in Freeport, Texas. President Leland I. Doan served as moderator, and Chairman E. W. Bennett and Executive V-P M. E. Putnam were among the board members answering the questions asked by the supervisors. Among the subjects of the queries: plant expansion, retirement, promotions, transfers, leaves of absence, stock offerings for employes, and Dow's role in the atomic energy program.

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Hanford Workers Get Boost: General Electric employes at the Hanford works will receive another cost-of-living pay increase. The new wage hike, as approved by the Atomic Energy Commission, will amount to 1.03%, retroactive to March 17. G.E. wages at Hanford now have climbed by a total of 4.61% since last September. The AEC also okayed a three-week paid vacation for employees with 15 or more years' continuous service with the company.

Iceman Vindicated

"Don't trade in your refrigerator for a new TV set just yet," was James F. Mead's advice to housewives who had heard about efforts to keep food from spoiling by sterilizing it with irradiation.

After research in his biochemistry division of the atomic energy project at the University of California at Los Angeles, Dr. Mead came up with a warning that X-rays can make these foods harmful: butter, milk, meats, salad oils, certain grains and seeds.

Beware of Radicals: "If foods with a high concentration of fatty acids were submitted to this irradiation (X-rays), these acids and vitamins in the foods would be destroyed," Mead stated. He explained that irradiation releases a chain of free radicals in the food, and that these free radicals act on other substances present to produce poisonous peroxides.

"The peroxides released," he cautioned, "are injurious to vitamins and essential fatty acids already in the body."

Blast Bout Still Rages

With about $350 million in claims at stake, the 8,500 persons who had sued the Federal Government for damages from the Texas City fertilizer explosion in 1947 have begun looking toward a show-down before the U.S. Supreme Court.

Their hopes for collecting on those claims shrank last week when the Fifth Circuit Court of Appeals, at New Orleans, reversed the District Court ruling that had held Uncle Sam guilty of negligence in handling the ammonium nitrate shipments.

'Explosive' Denied: In a unanimous decision, the Circuit Court judges ruled:

- The District Court erred in calling ammonium nitrate explosive.
- The plaintiffs failed to prove that the Government employes were negligent.
- There would be no use in taking additional evidence.

One of the largest of the about 300 claims included in the omnibus suit was that of Monsanto Chemical Co., asking $50 million for destruction of its Texas City styrene plant. A Monsanto spokesman said the next move had not been planned, but:

"Cases of this magnitude generally wind up in the Supreme Court."

Government Blamed: The case was argued for seven months in District Court in Houston and Galveston before Judge T. M. Kennerly handed down his decision April 13, 1950, holding the Government responsible for the disaster. He said the Government's "disregard for public safety" was "shocking."

The Government appealed, and last December the Circuit Court heard the lawyers' arguments. After five months' deliberations, the six judges agreed on a decision written by Judge Richard T. Rives, who declared:

"There is no evidence that . . . there was failure to use ordinary and reasonable care. The Government was manufacturing not an inherently dangerous explosive such as dynamite, but fertilizer which was safe if dealt with normally."

Dangerous When Mixed: "The evidence is," Rives continued, "that ammonium nitrate becomes explosive only when combined with other explosive compounds such at TNT. When not combined with substances such as these it constitutes only a fire hazard. In other words, it will burn but not explode."

To survivors of the estimated 560 persons killed in the blast, and to the 1,000 persons who were injured and the 5,500 persons and firms whose property was damaged, this sounded like sophism.

For these embittered plaintiffs, there were two more chances: first, a rehearing by the Circuit Court; and if that is turned down, a review by the Supreme Court.

LEGAL . . . . . .

Fertilizer Plant Wins: After a visit to a wet-mix fertilizer plant run by the same company, officials of Louisville, Ky., finally approved construction of a dry-mix plant by the Co-operative Fertilizer Service of Richmond, Va., in a Louisville suburb. Residents of the neighborhood had protested to the Zoning Commission that evil odors would emanate from the plant. Indeference to those outcries, the Commission asked the company to build its plant on the far side of its 15-acre plot, some 700 feet away from the nearest houses.

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Won't Yield Without Fight: Octagon Process, Inc., of New York, has declared its "firm intention" of contesting the suit filed last month by American Chemical Paint Co. for alleged patent infringement. The suit accused Octagon of infringing on a patent on use of nickel as an accelerator in phosphatizing treatments on zinc surfaces. Octagon claims that the specific patents on nickel accelerators expired many years ago.

COMPANIES . . . .

Weyerhaeuser Timber interests have obtained a 60-day option to sublease the onstream - again - offstream - again Government - owned alcohol - from-wood waste plant at Springfield, Ore.

•

Deere & Co., farm machinery maker, is finalizing plans for a $70 million financing program, $20 million of which is ticketed for company expansion into the fertilizer field. (*CW Newsletters, Mar. 1, June 14*).

As it looks now, $50 million will be raised through debentures, and $20 million via common stock.

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Columbia Southern division of Pittsburgh Plate Glass has sold $15 million in 3.125% notes, due May 1, 1967.

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West Virginia Pulp and Paper's industrial chemical division will discontinue making precipitated chalk at Covington, W. Va., in October. The company sees a more limited market for this grade of calcium carbonate than it does in the heavier grades.

•

Dewey & Almy has arranged to borrow $3.5 million from two Boston life insurance companies at a 4% rate of interest. The company has already taken $2.5 million, to be used for working capital and to retire about $1.5 million in bank loans. It will draw the rest of the loan later this year. Loan due date is 1967.

- The company, incidentally, has reduced stock dividend payments from 30¢ to 15¢.

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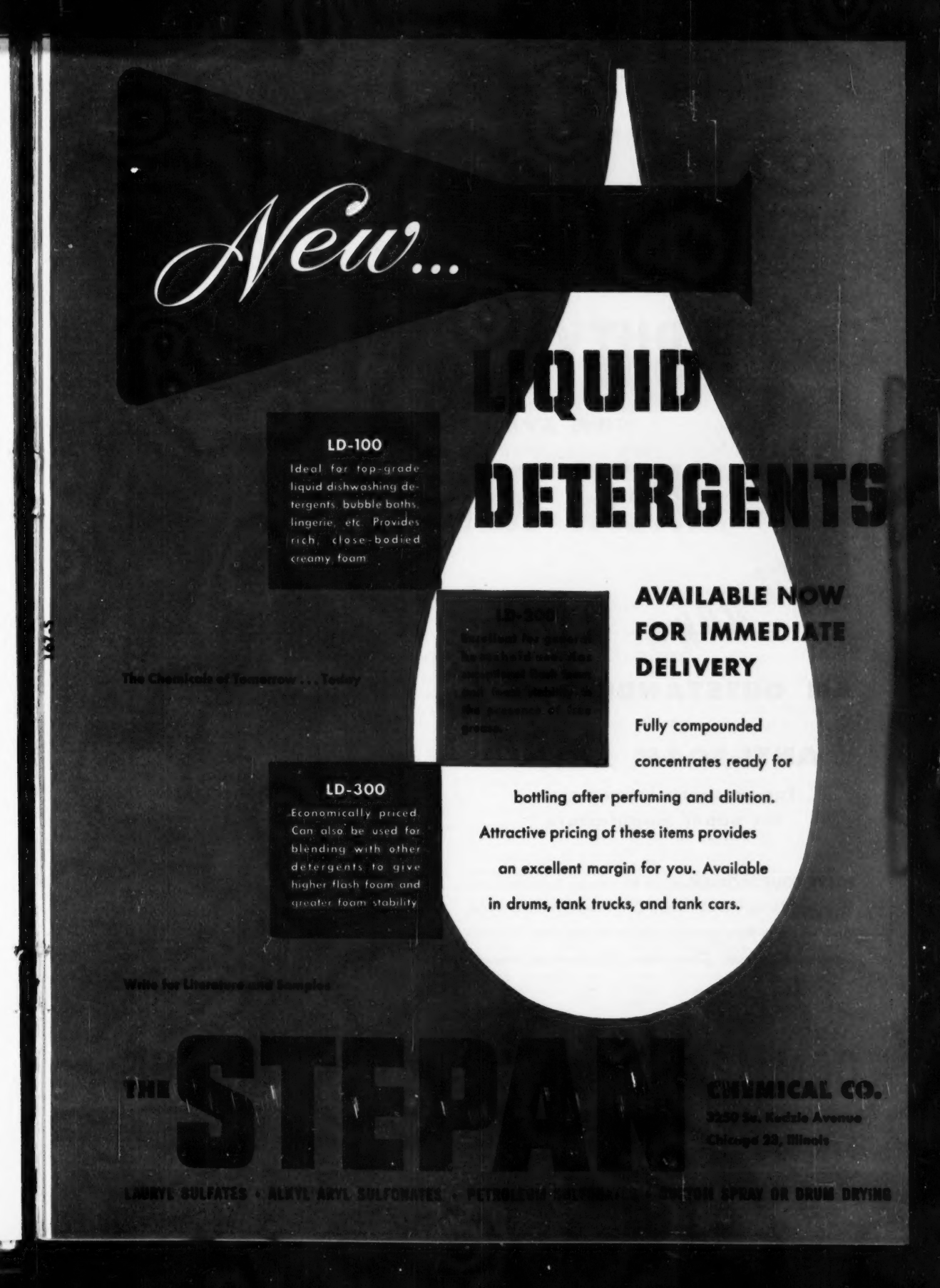
Chemical Research Corp., has acquired control of Maule Industries, building materials company, as the first step in a rehabilitation program. It exchanged one share of its common stock and $3 for each 383,942 shares of Maule stock.

- Chemical Research is now full

CURRENT LIST OF DPA-CERTIFIED FACILITIES

Company, Location	Product	Amount Certified	% Certified
Monsanto Chemical, Monsanto, Ill.	Sulfuric acid	$1,900,000	70
Stauffer Chemical, Vernon (Los Angeles), Cal.	Sulfuric acid	1,000,000	45
Minnesota Mining & Mfg., Copley Township, Minn.	Sulfuric acid	680,000	45
Cornwell Chemical, Cornwells Heights, Pa.	Sulfuric acid	481,000	45
Spencer Chemical, Pittsburg, Kans.	Nitric acid, ammonium nitrate	1,695,000	45
Spencer Chemical, Henderson, Ky.	Nitric acid, ammonium nitrate	400,000	45
Kaiser Aluminum & Chemical, near Fallon, N.M.	Fluorspar	410,700	70
National Cylinder Gas, Chicago, Ill.	Oxygen	1,492,500	60
Cabot Carbon, Bayou Sale, La.	Carbon black	370,650	50
Moss Iron, Trafford, Ala.	Coke & coal chemicals	227,638	85
American Petrochemical, Lake Charles, La.	Vinyl, ethyl chloride	26,640,000	50
Jefferson Chemical, Port Neches, Tex.	Ethylene oxide	18,700,000	50
Wyandotte Chemicals, Wyandotte, Mich.	Ethylene oxide	6,200,000	50
Texas Eastman, Harrison, Tex.	Polyethylene	7,000,000	60
Rohm & Haas, Deer Park, Tex.	Hydrogen cyanide	1,113,576	80
	Ethyl, methyl methacrylates	7,465,734	40
	Methyl methacrylate	4,791,703	80
Rohm & Haas, Bristol, Pa.	Methyl methacrylate	1,263,449	80
Commercial Solvents, Terre Haute, Ind.	Penicillin	252,450	50
Vitro Chemical, Salt Lake City, Utah	Military products	838,214	80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SPECIFICATIONS

Specific Gravity at 20°/20°C	0.973 to 0.983
Acidity as Phosphoric Acid, max	0.05% by wt.
Water, naphtha test	None
Color	Water-white

PROPERTIES OF COMMERCIAL GRADE MATERIAL

Boiling Point at 27 mm. of mercury	177°-178°C
Melting Point	Below −80°C
Flash Point, Cleveland Open Cup	294°F
Viscosity at 25°C	3.41 centipoise
at 85°F	38.6 Saybolt seconds
Dielectric Constant at 30°C	7.97
Weight per U. S. Gallon	8.13 pounds at 68°F
Solubility in Water	0.6% by volume at 25°C
Solubility of Water in Tributyl Phosphate	Approx. 7% by volume at 25°C

INDUSTRIAL CHEMICALS DIVISION

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117-S

owner of the Gyro Process company, which holds patents on the Gyro vapor-phase oil-cracking process. American Locomotive held 10% interest in Gyro Process through December, 1951, when it sold its interest to Chemical Research, following settlement of a court suit which was started in 1940. Company activities had been dormant through the period of litigation.

•

Imperial Chemical Industries stockholders were scheduled to vote this week on whether to increase authorized stock by 25 million £1 par shares. If approved, total authorized would be 120 million shares.

•

DeBell & Richardson (Hazardville, Conn.) has set up an affiliated company, D&R Pilot Plants, Inc., to undertake pilot manufacture of plastic materials and products developed by the parent company.

•

Diamond Alkali has acquired metal desanding and descaling processes owned by Spence Metals Research (Pittsburgh). Diamond has been the supplier of the alkali materials used in the processes.

•

Blockson Chemical has filed for SEC approval its first public offering of common stock. A total of 500,000 shares of $7.50 par common are being sold by seven members of the Block family, who will then hold 0.25% of the common, but will still keep full control of company Class B—and 66.75% of the combined classes. Dividends on each will normally be the same; any changes in company articles of incorporations must be approved by majorities of both classes.

•

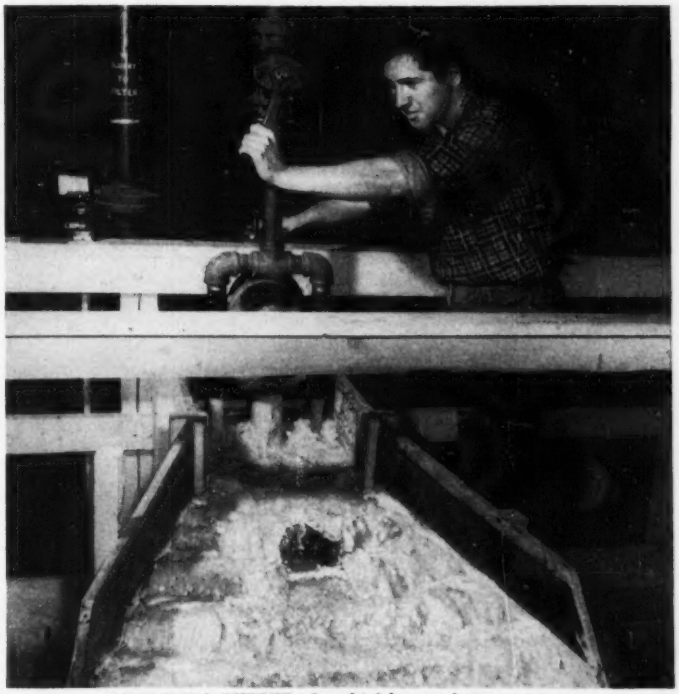
B. F. Goodrich Chemical, which operates a government-owned synthetic rubber plant at Institute, W.Va., has now been ordered to continue production. Earlier, the RFC, which operates the government's rubber manufacturing operations, had told Goodrich to close the plant July 1.

•

Esso Standard Oil has optioned 800 acres of land fronting on the Elizabeth River near Norfolk, Va., and is considering constructing a $50 million refinery.

•

Newmont Mining (New York) has asked the SEC to allow its affiliate, Sheritt Gordon Mines, to sell it convertible debenture and first mortgage bonds, which total $8.5 million. Newmont now owns 13.8% of the Sheritt Gordon stock.



SYNTHETIC RUBBER: One-third less work-time per ton.

Labor Saving in Rubber

Labor's role in the post-war synthetic rubber industry has featured productivity gains that helped attain a 33% saving in number of man-hours required for each ton made, the government reports.

Because of this increased efficiency in synthetic rubber plants in the U.S., the industry now is turning out materials that sell for 8% to 50% less than natural rubber. (Natural rubber, 38¢ a pound; neoprene, 35¢; butyl and GR-S, fixed by Government at 18.5¢.)

Work Time Halved: Most spectacular advances in output per man-hour came in the butyl and neoprene plants, with work time on each ton of finished product shrinking by more than 50% in five years. In 1945, it took 105.7 man-hours of labor to turn out one long ton of neoprene; by 1949, this figure was down to 49.6 man-hours. For butyl, work per ton dwindled from 88.1 to 40.3 man-hours.

However, these two rubbers accounted for less than one-fourth of total synthetic rubber production. The major product in the field, GR-S, was coming out of the mills in 1948 with a 24% labor saving as compared to 1945, when about 51 man-hours went into each ton. This included time for production of GR-S' two main components, butadiene and styrene.

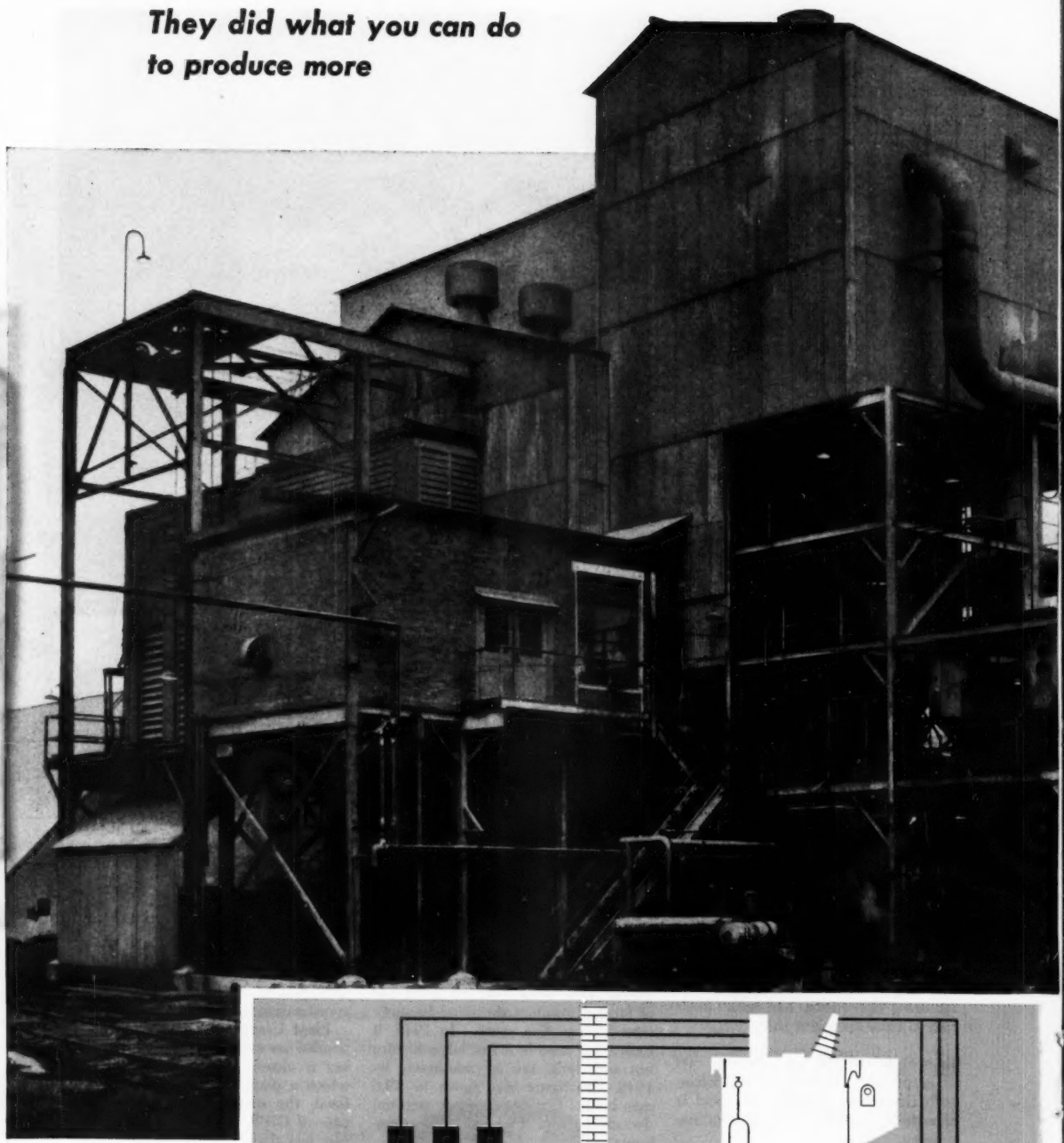
Credit for the higher output per man-hour was dealt out by the Bureau of Labor Statistics to four causes:

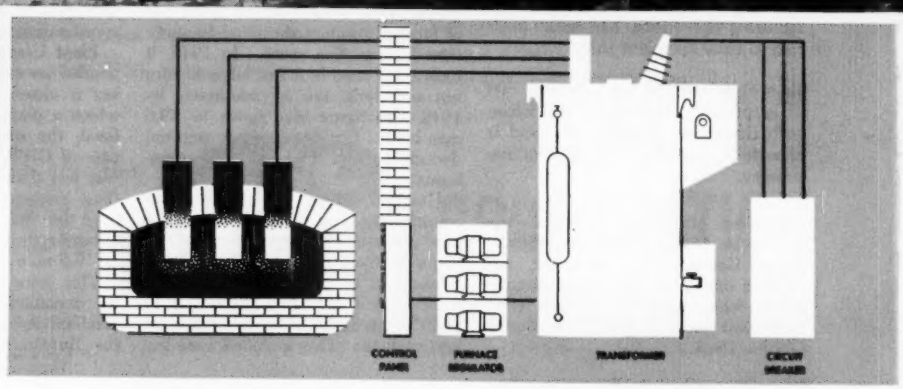
- Rapid progress in technical processes;
- Intensifiied programs of preventive maintenance, widening the time lapse between periodic shut-owns for repairs;
- Greater stability of the labor force, due to a fall-off in labor turnover after the war; and
- "Increasing productivity experience and efficiency on the part of both management and labor . . . and closer coordination among the work crews."

Plant Usage Effect: Work time expended on each ton of synthetic rubber is closely tied to the degree to which a plant's capacity is being utilized, the survey points out. In the case of GR-S, where plant utilization was less than 80% of capacity, labor time averaged 26.7 man-hours per long ton. With utilization up to 90% or better, the time investment dropped to 19.9 man-hours a ton.

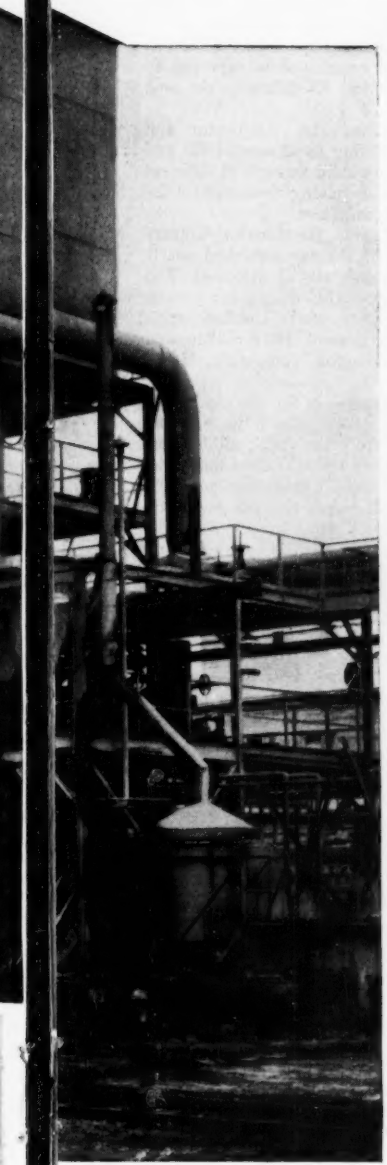
This principle was put forward as the explanation for the sag in labor productivity in 1949. In that year, the Bureau reported, a 21% cut in

They did what you can do to produce more





How the right Arc Furnace Equipment keeps costs down



Here's a case where a relatively small plant is one of the industry's lowest cost producers. It's the Virginia-Carolina Chemical Corporation's new electric furnace operation at Charleston, S. C., for the production of phosphorus.

Power efficiency is 10% above normal

The biggest operating cost item is electric power (30 to 35% of total operating costs) so they planned the electrical system carefully and had Westinghouse help. First they designed for an unusually high operating voltage. This increased the efficiency 10% and also boosted furnace capacity. In effect, the high voltage lengthens the ***reaction zone*** in the furnace and thus increases production per kwhr.

Rototrol runs furnace automatically

The furnace operation is controlled automatically by Westinghouse Rototrol®. It maintains the desired operating conditions by continuously moving the carbon electrodes up and down within the boiling charge. When any electrical disturbance occurs, Rototrol smoothly restores proper conditions without overshooting.

System designed for high power factor

Smart planning also resulted in a high power factor for the unit and this further reduced power bills. The whole electrical system is highly dependable because of the experience Westinghouse brings to furnace equipment design. More Westinghouse arc furnace equipment is in use than all other makes combined.

Call Westinghouse on your next project

This project is typical of the engineering assistance and equipment Westinghouse applies to chemical processes. When your next project comes up, call Westinghouse *early* in the planning stage.

FREE BOOK ON ARC FURNACE EQUIPMENT

If you're interested in arc furnace production, write now for this free book "Westinghouse Equipment for Electric Arc Furnaces", B-4695. It tells how you can increase output, get more dependable production. Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania. J-94886

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EQUIPMENT FOR
CHEMICAL PROCESSES

total plant utilization was accompanied by a 15% rise in number of man-hours per ton of output.

The government's survey included a note of sky-blue optimism for the still-young industry. Observing that synthetic rubbers are superior to natural rubber for certain uses (GR-S, tires; butyl, inner tubes; neoprene, insulation and hoses), the Bureau predicted:

"There is every indication that additional synthetic production of about 200,000 long tons could be consumed for several years."

Atomic Buying

Already buying chemical materials at a rate of nearly 10 million dollars a year, the expanding U.S. Atomic Energy Commission plans to step up its purchases during the next few years by about one-third.

In addition, the market for certain kinds of chemicals is due to be broadened by the coming of an atomic energy industry to fill the needs of private business—and this new atomics industry is expected to become much bigger than the government's AEC.

Field Still Open: It's possible for almost any type of technical firm to get into the government's atomic energy program, and thousands more will be needed, declares the magazine *Nucleonics* in a report on AEC buying. Secrecy requirements are called a nuisance but not a barrier.

The AEC has spent $6.5 billion in about 10 years, and is expected to spend aonther $5 billion in the next few years.

Expenditures for equipment and supplies during fiscal years 1950 and 1951 were spread through 41 different industries, involving thousands of individual companies.

In this group, the chemical industry ranked 14th, having furnished nearly $17 million worth of materials. Top suppliers for AEC during the period: manufacturers of mechanical engineering equipment, $69.4 million; and steel production companies, $61.4 million.

Of the contracts for chemicals, less than $4 millions' worth were prime contracts from the AEC; all the rest were sub-contracts. Most of the prime contracts were negotiated, but 90% of the sub-contracts were based on competitive bidding.

Chemist Invents New Parlor Game

INSPIRED BY CHEMICAL SMOKE and synthesized by an employee of Union Carbide and Carbon Corp., "Boondoggle, the game of comic elections," was scheduled to go on sale this month. This timing would make it possible for every family to be playing the game during the national political conventions next month. Co-inventors are James S. Wiley, left, formerly with UC&CC, and Henry Martin, magazine artist. Wiley began thinking about invention of games when he saw chemical smoke capsules used to test a ventilating system.

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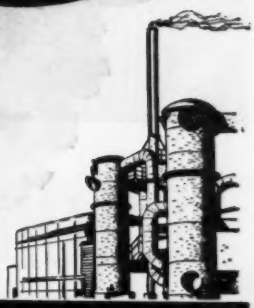

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BLOCKSON CHEMICAL COMPANY • JOLIET, ILLINOIS

Why majority of consumers

SURVEY HIGHLIGHT. A gain of 111% in the number of aerosol-product users during the past five years was shown by the fifth nationwide Du Pont survey of the market for aerosols, conducted in 1951.

AEROSOLS USED BY MORE THAN HALF THOSE QUESTIONED. Fully 57% of the men and women questioned in both urban and rural market areas from coast to coast reported that they had purchased aerosol-packaged products of one type or another.

The majority of these users stated that they were well satisfied. For example, many respondents had purchased and used both the wick type and the aerosol type of room deodorant. Of these buyers, 61% of the urban residents and 73% of those living in rural districts said that they liked the modern aerosol method of packaging better. This indicates a preference for aerosols of 3 to 1 in the urban group; 9 to 1 in the rural group.

By further questioning in both markets, it was shown that purchasers preferred room deodorants of the aerosol-packaged type for the following reasons:

Effectiveness	40%	(average)
Quick-acting	37%	(average)
Convenience	30%	"
Pleasant odor	22%	"
Clean; not messy	6%	"
More widespread	5%	"
Longer-lasting	5%	"

BIG PERCENTAGE RE-BUY. 80% of the urban users of aerosol room deodorants said that they would continue to purchase products of this type. 92% of the buyers in rural markets made a similar statement.

Throughout the entire field of aerosol products the report is much the same. This newer way of packing has a definite sales appeal that is proving a profit builder everywhere. Dealers who have featured aerosol-packed products report that repeat

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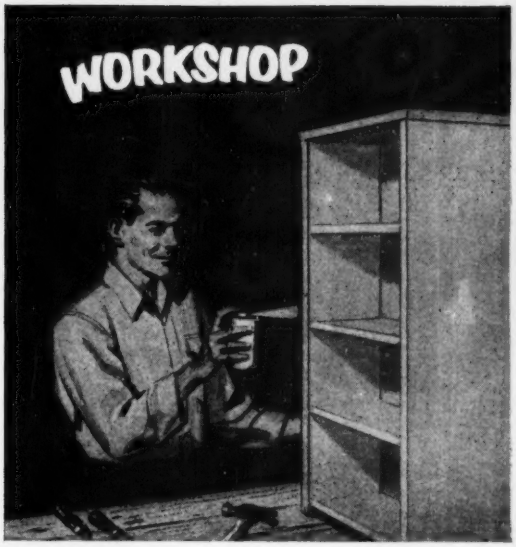

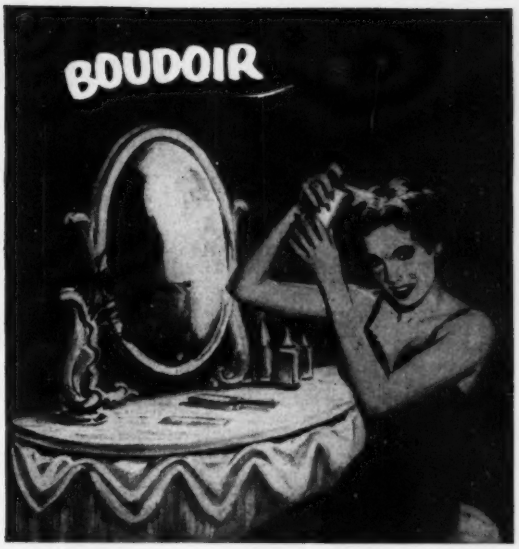

prefer AEROSOL packaging

sales have been steady and are encouragingly high. Over 90% of the dealers answering the survey questionnaire stated that few, if any, of their customers voiced dissatisfaction with any aerosol product they had purchased . . . further indication that the popularity of aerosol products will continue to gain rapidly.

SURVEY DIGEST FREE. If you are now marketing an aerosol product, write for a copy of the 1951 Du Pont Aerosol Market Survey Digest. If you are considering the possibility of this type of packaging for one or more of your products, you will also be interested in "Package for Profit". . . a 32-page booklet containing valuable information about the expanding market for aerosol products of many types. Address: E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

Versatility of "Freon" propellents an important factor

Throughout 1951 aerosol manufacturers used a total of 21 different "Freon" propellents. Insecticidal aerosol makers, for example, used four different "Freon" propellents; foam-product and room-deodorant aerosol marketers used three different "Freon" propellents each.

Different ingredients, qualities of solubility, pressures, particle sizes and other properties of an aerosol product dictate that the propellent should be tailored to fit each individual need. Because "Freon" propellents are highly versatile, they can be formulated to meet exacting requirements. In addition, "Freon" propellents are safe . . . noncombustible, nonexplosive, virtually nontoxic, harmless to fabrics, furs and finishes. Their chemical purity further insures correct, satisfactory operation of the aerosol-packaged product.

You are cordially invited to consult Du Pont ("Kinetic" Chemicals Division) technical service for assistance. We will gladly help you in outlining every step from market explorations to production operations. No obligation on your part.

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Percentage on Percentage

Oil companies are girding for a battle to keep their present 27½% tax depletion allowances. Only long-term planning, they feel, can keep the percentage where it is.

Depletion reserves haven't been in the same headline class as mink coats and tax pay-offs, but the fact that oil companies may hold back 27½% of profits can easily become the basis for a future legislative fight.

During the past year, the King tax subcommittee has been investigating tax scandals; a few weeks ago it introduced, with Treasury backing, a bill to plug technical loopholes in the tax laws. Still in the offing is a push to reduce depletion allowances to 15%, though, right now, Washington observers see little chance that the matter will come up before Congress in this election year.

Present laws underline the principle

SENATOR DOUGLAS: "Favored groups . . . special interests . . . tax loopholes."

that oil in the ground is, to the oil companies, money in the bank. Withdrawing this oil is withdrawing capital, and thus can't be considered "profit" in the same way as the monetary return from processing. Nobody argues against the principle—the debate is over "how much."

On one side are the producers themselves, who say that only by keeping a 27½% reserve can they afford the necessary exploration work to discover new deposits.

On the other, are President Truman, the Treasury, and some members of Congress. Probably the most vocal advocate of reducing the allowance is economics-professor-turned-Senator Paul Douglas. His point: The potency of lobbying groups has opened up tax "loopholes" such as this depletion reserve allowance.

And even oil industry management has privately wondered how it can justify its percentage in the face of record profits. The fact that, by and large, oil producers were about the only company group which increased after-tax profits last year, is a rather damning one.

Where and When: There is virtual agreement on both the pro and con sides of the fence that action won't come before next year. To think otherwise would be unrealistic as to the power of oil interests and to the log-jam now before the legislators.

Best bet now is that the fight won't begin before February, 1953. But both sides are already making preparations.

While these negative rumblings were emanating from Washington, the situation was different in Kansas City. A chorus of voices approving present depletion allowances was raised at an oil and gas symposium sponsored by Kansas City University and the Mid-Continent Oil and Gas Association.

Said W. Leo Austin, Atlantic Refining's chief federal tax attorney, depletion percentage "incentive purposes have been fully realized. They have created new wealth and new sources of taxation."

In reviewing the history of depletion allowances, Austin asserted that from an administrative standpoint, percentage depletion is much more logical than discovery depletion, figured on the actual reduction in well flow and production.

Phillips Petroleum's Hilary Mahin, who concerned himself with legal decisions on depletion, reported: "I believe that we can safely state that the oil industry has been exceedingly fortunate in the quality of the Supreme Court decisions on depletion." The Court, said Mahin, has had a good grasp of the realities of the oil business. Its decisions under earlier depreciation laws pointed the way to percentage depletion as a method of computing a deduction "according to the peculiar circumstances" of the oil producers' case.

But whatever else was said, the oil producers have a telling point in the need for new native oil sources; it's a point which can't be overlooked.

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Color, Gardner	3	Viscosity, G.H. @ 25°C.	K
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John E. Swearingen: To director, Standard Oil Co. (Indiana).

Elmer Hartgerink: To director, vice president, and plant manager at Zeeland, Mich., Sumner Chemical Co.

Ralph L. Ericsson: To director, Sumner Chemical Co.

Harold Holden: To president and director, Eastern Corp.

Thomas W. Simmons, Jr.: To president and general manager, Johnston Pump Co.

Leon A. Sweet: To vice president, Parke, Davis & Co.

W. R. Jeeves: To vice president, Parke, Davis & Co.

W. E. Hartnoll Jr.: From general sales manager to vice president in charge of sales, Great Northern Chemical Co.

Stephen Laufer: To vice president, Schwarz Labs., Inc.

David R. Schwarz: To vice president, Schwarz Labs., Inc.

Edmund T. Flanagan: To vice president in charge of sales, The Fairbanks Co.

William Higbee: To vice president in charge of research, Testworth Labs., Inc.

E. J. Martin: To vice president and general manager, Harvey research center, Sinclair Research Labs.

Herbert E. Hirschland: To director of research, Metal & Thermit Corp.

Richard K. Flitcraft: To assistant research director, Merrimac Div., Monsanto Chemical Co.

Walter T. Blake: To manager, research and development dept., Pillsbury Mills, Inc.

E. M. Kline: From assistant general manager to general manager, Huntington Works, The International Nickel Co., Inc.

Robert S. Price: To general manager of manufacturing and sales, plastics div., The B. F. Goodrich Co.

Edward Peters: To plant superintendent, analytical labs., St. Louis Smelting and Refining Div., National Lead Co.

J. L. K. Snyder: From vice president in charge of sales, Merck & Co., to independent consultant, New York.

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A Threat: Big Research

This year's federal research budget, in the neighborhood of $2 billion, supports two-thirds of the Nation's total research effort, uses more than half of our research capacity.

Governmental invasion of traditional industrial research fields is an inevitable consequence.

Nature of the problem, what can be done about it is outlined to CW this week by OTS chief John C. Green.

OTS'S GREEN: "A problem which both sides . . . must cooperatively attack."

"More and more" is by now a familiar refrain of government research comptrollers. This year they are singing it to the tune of more than $1.6 billion. Without a doubt, much of this outlay for research and scientific development is in the hallowed interest of the defense effort. But the time is past when industry could afford the role of an unconcerned onlooker. Industry is directly affected by the expansion of federal research, must face up to growing problems (taxes, technical manpower shortages, etc.) in the formulation of its research policies.

To get a clear picture of the impact of the burgeoning federal research program on industry, CW's Washington editor sounded out John C. Green, director of Commerce Department's Office of Technical Services.

Green has headed the Office since it was set up in 1945 to speed dissemination of captured German and Japanese technological data. OTS now is the central clearing house for technical reports resulting from government and government-sponsored research.

Clear View: Green's long government service apparently has not clouded his perspective. Tracing the development of the present situation, he explains: "Before World War II, the impact of government research upon private industry was so negligible as to be ignored. Industry either disregarded government research or viewed it with tolerance as a minor activity.

"The war marshaled the nation's scientific talents . . . Science became an instrument of warfare. After V-J Day we cut back our armed strength to a degree now regretted; our scientific efforts in the defense area were not so stringently curtailed.

"Since Korea," claims Green, "this military support of science has been stepped up to a degree which makes the problem of governmental invasion of fields normally occupied by industrial research a very real one." The $1.6 to $2 billion research package now supports two-thirds of the Nation's total research effort, uses more than half of our research capacity.

Because much of this activity is primarily focused on tools of war doesn't mean that there isn't any invasion of fields traditionally associated with private business. There is competition in many ways. In the words of the OTS administrator:

"First, and perhaps most serious, is the manpower competition. Government and industry are both striving for scientific talent. But even the industry demand is [in many cases] actually for work received from government agencies under contract. Hence the available and future scientific manpower is being funneled into projects carried on by government in its own laboratories or in private organizations working, in effect, as agents of the government.

"Naturally, this means that the quality and number of men working

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Low Pressure Helium Liquefier. Produces 4 liters liquid helium per hour. Maintains temperatures down to −271°C. Liquefies other gases, such as O_2, H_2, N_2. Available as proven equipment.

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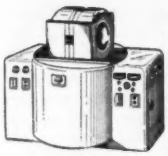
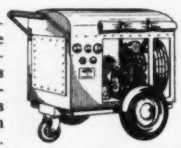


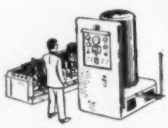
ADL Electromagnet

Compact, Multipurpose Research Electromagnet. Weighs only 2 tons. Produces field strength up to 40,000 gauss with 20 KW. Provides variety of field patterns — interchangeable pole pieces. Available as proven equipment.

Self-contained, Gaseous Helium Cycle Refrigerator. To prevent evaporation loss from tanks containing liquefied gases such as liquid oxygen and liquid hydrogen.



ADL Helium Refrigerator



ADL Hydrogen Liquefier

A safe, convenient method for liquefying hydrogen or practically any other gas. Based on the proven, low-pressure, gaseous helium refrigerating cycle used so successfully in our ADL Collins Helium Cryostat.

These are but a few examples of Arthur D. Little Mechanical Division's services in developing specific items from the idea through the complete manufactured unit.

WRITE FOR BULLETIN CW-2

ARTHUR D. LITTLE, INC.
Mechanical Division
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RESEARCH • ENGINEERING • TECHNICAL-ECONOMICS
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on purely commercial peacetime . . . items is severely curtailed."

The Question: Continuing, Green says: "The work . . . of the Atomic Energy Commission is almost too easy an example of government dominance of a scientific field. Yet, what industry can perform significant research independent of the Commission? This situation, deplored by many, is the natural result of the achievement of the bomb and the necessary government monopoly of nuclear development—temporary we hope—which the international situation forces upon us."

Again, the belated awareness that the country does not possess inexhaustible natural resources brings government into a field of direct and sometimes competitive industrial interest. Synthetic rubber research is a case in point. Current activities in metals and fuels will create new economic conditions for industry to face.

Titanium is an outstanding example. Normally applications for this metal would be explored by private companies. And a substantial amount of private development is going on. Yet the implications of the metal in aeronautics, ordnance and a host of other defense uses justify the current government-sponsored work.

"No well-run manufacturing organization is going to embark on titanium research without an awareness of the government's efforts, if nothing else than to avoid a needless expenditure of funds and facilities," Green claims.

Projects devoted to the development of cold-weather clothing, improved lubricants, corrosion-resistant coatings, food preservation techniques, etc. are additional examples of military research which parallels industry's accepted function.

A But: Does all this mean that government must necessarily dominate industry in research and development? Far from it, according to Green. But he adds: "It does mean that industry can no longer ignore the force and implications of the government's operations and financial outlay."

What should industry do about it? Green's prescription: "First develop an awareness that this is a problem which both sides—government and industry—must cooperatively attack. Then accept offered membership on government research advisory committees which plan many of the programs and policies governing work undertaken. Through these committees industry will be able to offer sage counsel and a restraining hand when needed.

"Next, those in industry who plan research and put its results into commercial use should take better advantage of the government work. This $2 billion research package develops a tremendous volume of information which is not tied up in secrecy and therefore is available to industry as a dividend from the substantial tax burden."

Hitting close to home, Green adds: "The Department of Commerce has been designated as a release point to industry for the wealth of information which can safely be released and which pours out of AEC, Defense and other agencies. The . . . roster of customers for this data reads like the 'blue book' of progressive . . . management. However," laments Green, "it's only a small percentage of the potential users when compared with the number of private manufacturing companies in this country."

The Clincher: Thus the inevitable conclusion. You can look to a continually bigger federal research program. You can't ignore it, so join it; gear your work to government efforts. And the clincher: You're paying for it, so why not take advantage of it?

Of course these arguments have a ring of logic to them. But those who are genuinely fearful of the narrowing gulf between government and industry, will find in them little cause for rejoicing.

Twice as Many Rats

Foster D. Snell, Inc. is doubling its Supplee Laboratories Division facilities at Bainbridge, N.Y. Supplee's line: white rats for clinical research, pharmacological testing and vitamin D determinations.

Snell's white rat business, though comparatively small—approximately $50,000 this year—is profitable. Increased output, resulting from the current expansion, will be available by fall, may set the pattern of things to come in the light of mounting demand for the laboratory rodents.

White rats can thank vitamin D for their present happy status. Vitamin D-fortified milk is big business today. And so are white rats, since 27 of them at prices ranging from 75¢ to $3 each are needed for each vitamin assay. Moreover, most states now require that two samples of milk a year from each dairy be tested for D content. That means thousands of tests and legions of rats.

Surprisingly enough, Foster D. Snell's entry into the white rat business was more by accident than

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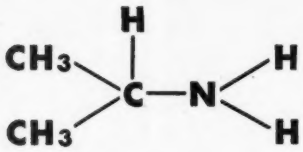
FROM RESEARCH TO INDUSTRY

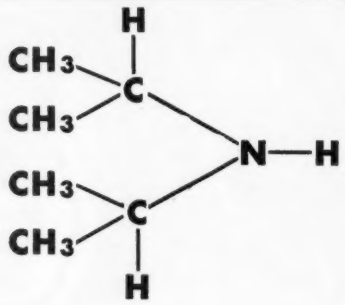
SHARPLES ISOPROPYLAMINES

Isopropylamine



Isopropylamine is the lowest molecular weight alkyl amine which can be supplied in anhydrous form without the use of special pressure containers.

Diisopropylamine



Both products are available in tank cars and drums.

Samples and technical information sent upon request.

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design. In 1950, Snell bought the Supplee Laboratories for vitamin D assaying (*CIW, Jan., 27 '52*); a 10,000-member rat colony went with the deal. With more rats than it needed, the new owner submitted its surplus—in trial groups of 50—to pharmaceutical houses and the Army Chemical Center.

According to one Snell spokesman, the Supplee rats proved to be a superior strain, almost ideal for a number of laboratory uses. Demand for them developed rapidly, is still on the upswing.

Claim To Fame: George C. Supplee, of nutrition chemistry fame, gets the credit for the quality of his rodent namesakes. He started a Wistar colony back in 1924. In 1929, he began inbreeding them to improve certain characteristics, eventually produced his Supplee-Wistar strain. Some of their desirable qualities: freedom from Bartonella's disease of the spleen, common to ordinary Wistar rats; docility; suitability for drug and chemical tests as well as the vitamin assays for which they were developed.

Approximately 500,000 rats are produced annually for scientific purposes. Of these about 50,000 are accounted for by Supplee Laboratories. During her short reproductive life a female rat will have delivered between 32 and 68 offspring.

The U.S. Army alone takes 2,000 white rats at a clip for 10-week delivery. One pharmaceutical company wants 300 a week for an indefinite period. Orders like these are behind the Snell increase, bode well for the commercial future of the pedigreed rodents.

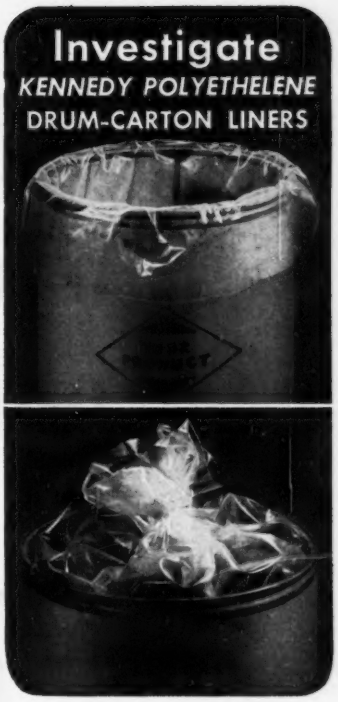
BORAX CITRUS RINSE: Playing safe until the results are in.

Boron: Off Limits in the West

California citrus packers, plagued by charges of boron pollution, have launched a search for a borax substitute. Prompted by the State Water Pollution Control Board, 26 packing plants in Ventura County have hired California Fruit Laboratories for one year to come up with either a substitute material or a method for reducing to 1 ppm. the amount of boron in their waste waters.

The State Board became interested in the problem last year when a survey of Ventura County water showed its boron content to be perilously close to maximum tolerance level. Lower and upper limits for boron have been set at ½ and 1 ppm. respectively; below ½ there is a deficiency in plant nutrition, above 1 ppm. symptoms occur in plants similar to those caused by a calcium deficiency. Packing wastes run as high as 6,000 ppm., and the Board feels that they are contributing to a condition that might eventually make citrus growing in the County impractical.

Although admitting that not enough



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is known about Ventura's underground waters to set 1 ppm. permanently as the maximum allowable boron content in packing wastes, the Board believes it is good sense for the present to stick to a figure known to be safe. A survey of the County's hydrology and hydrography by the State Division of Water Resources is now under way. The results, due the first of next year, should tell how much dilution can be counted on and may bring a revision of the allowable limit.

Meanwhile the Board is proud of the fact that its basic philosophy—encouraging industry to do its own policing—appears to be working in Ventura. It took some prodding, but the packers finally agreed to get together for a joint attack on the problem, which has been known to exist for many years. The Board feels that while it can call for reduction of boron content, how it is done should be up to industry.

Almost 2 million lb. of borax are used each year by California citrus packers to prevent decay in fresh fruit. About 7% stays on the treated fruit, clinging to injuries and preventing decay; 32% remains as residue in the treating tanks; and 61% goes off with the rinse water. Treating tanks are emptied periodically (at intervals ranging from once a season to once every 10 days) and fresh solutions are put in. Some plants have already started hauling tank residues to safe disposal areas, but this leaves the problem of rinse water untouched.

Take Your Choice: Four methods have been proposed for coping with the problem: 1) collecting rinse waters for hauling to safe disposal areas; 2) construction of disposal lines running to the ocean; 3) concentration of rinse waters for re-use; 4) development of other processing materials or techniques.

All methods present difficult economic or technological problems. Sunkist research laboratories have already experimented with vapor treatment using trimethyl borate. Lab results are promising, but conversion to this method would be revolutionary and costly. Other treating agents offer other difficulties.

Not all experts agree that boron must be eliminated from packing wastes. Sunkist research head W. E. Baier doubts that plant disposal is a significant factor relative to the high natural boron content of some streams. A study made by Sunkist in the Chino Basin (the Los Angeles-Riverside-Santa Ana triangle) indicates that packing house contributions to boron accumulation in underground waters amounts

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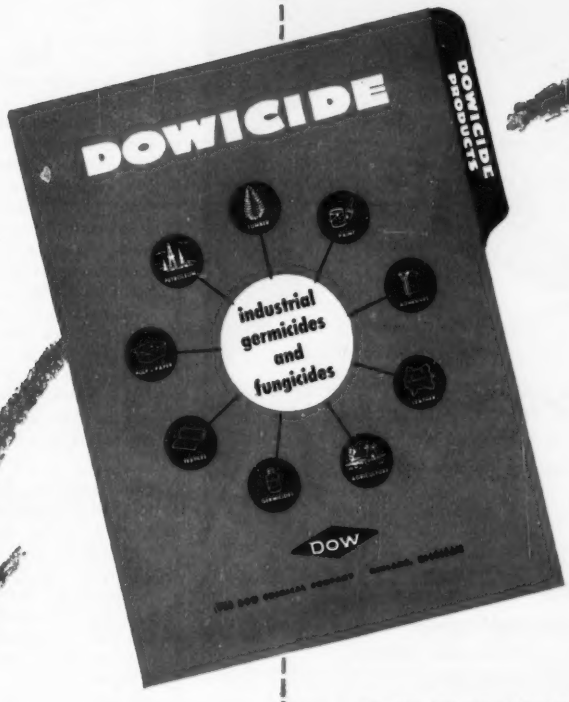

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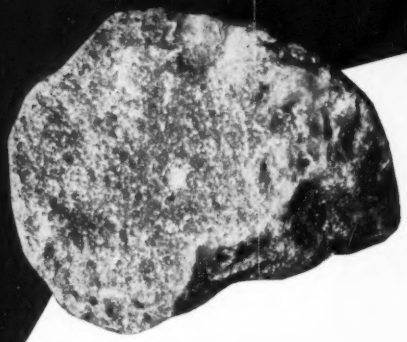

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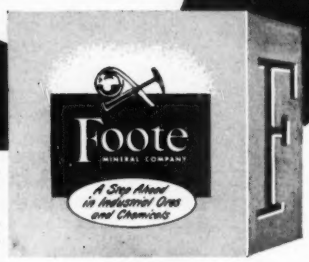

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414 Eighteen W. Chelten Bldg., Philadelphia 44, Pa.
PLANTS: Exton, Pa.; Kings Mountain, N. C.

to only 0.001 ppm. per year. Examination of wells showed no correlation between boron content and proximity to packing houses.

Another factor to be considered, in addition to the natural boron content of indigenous streams: the type of soil in the drainage basin. While working with boron weed-killers, Pacific Coast Borax Co. found that boron is somehow fixed in clay soils; it takes five to ten times as much boron to kill weeds in clay soils as in sandy soils.

Not For Discard: Discussing the problem with CW's Pacific Coast editor, Sunkist's Baier pointed out that it seems ridiculous to talk of waste water with a maximum boron content of 1 ppm.; if you purify to that point it's no longer waste, and who's going to throw away good water in thirsty Southern California

Baier admits, however, that a serious problem may exist in Ventura County's Santa Clara Basin, where drainage is much poorer than in the Chino Basin. If the Ventura problem can be solved, there should be no trouble elsewhere.

•

One From Two: Reverberations of the Pennsalt-Sharples merger will shortly be felt in the research divisions of both organizations. Between June 15 and Sept. 15, Sharples' research department will be integrated with the research and development division of the parent company.

Laboratory facilities at Pennsalt's Whitemarsh Hall (Wyndmoor, Pa.) are being extended to provide added space for the expanded staff. Certain organizational changes also accompany the move:

W. A. LaLande remains as manager of Pennsalt's research division. But John F. Gall, currently supervisor of Pennsalt research, will become director of the expanded organization's inorganic research department. John F. Olin, director of research for Sharples Chemicals, will take over as director of the new organic research department.

George McCoy, now Pennsalt's organic group leader, assumes the position of technical assistant director. Sharples assistant research director T. E. Deger becomes administrative assistant director.

Commenting on the shakeup, LaLande states: "Combination of the two . . . groups . . . gives Pennsalt . . . [a] strong organization for . . . attacking problems in organic technology and for developing new products . . . through the use of Pennsalt and Sharples starting materials."

ROUTE TO:
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DEVELOPMENT ☐
RESEARCH ☐
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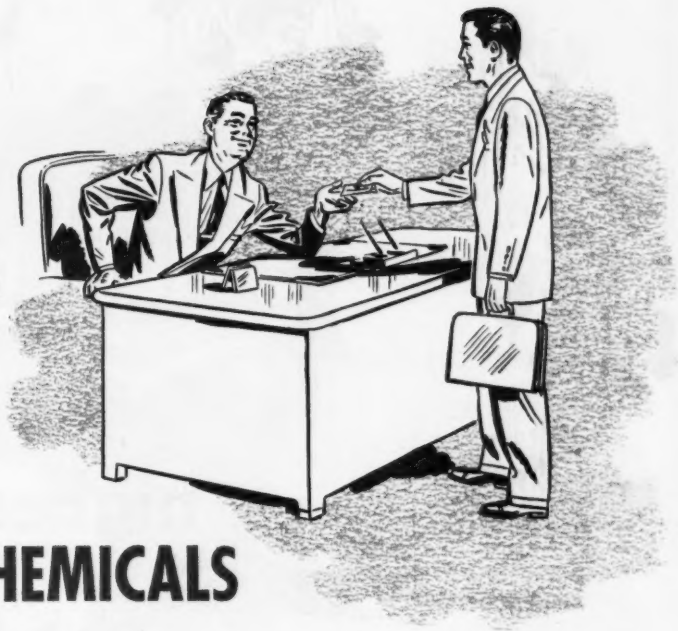

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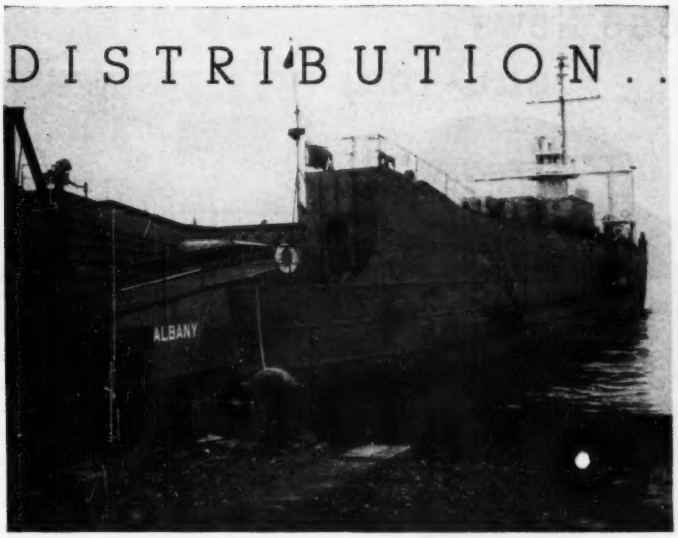


Shipping by Trailer by Ship

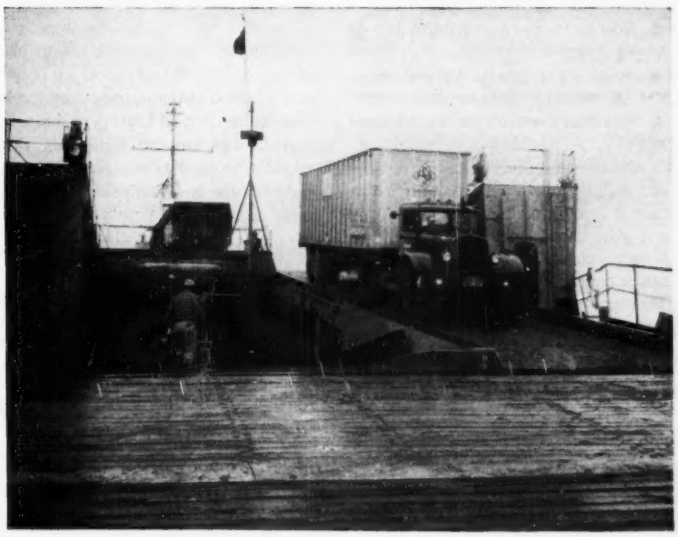
A hybrid carrier has appeared on the American transportation scene. It is part truck-trailer and part inland-waterway freighter. The combination approaches the mobility of the first and the economy of the second.

With a large part of their industrial plant situated on or near navigable streams, chemical process industry traffic men are watching the development closely. It might fit in with their future planning.

Scene of the first "trailership" operation is the Hudson River, where American and Oversea Chartering Corp. has instituted a regular service between New York and Albany.

The two vessels used are converted LST's (Landing Ship, Tank) which are capable of handling fifty trailers per trip. Thirty of these are put on the top deck, the remaining twenty are stowed away below.

Big optional advantage for truckers is that the trailer can make the trip alone, if desired, thus saving over-the-road tax and maintenance costs on the tractor. Truck fleet operators can leave the trailers at the New York terminal parking lot and local tractors can pick them up in Albany twelve hours later. At $50 per trailer, the operating line does all the rest, using a small shipboard prime mover.



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OPERATING on a continuous, closed-system basis, VOTATOR Heat-transfer Apparatus gives high rates of heat transfer . . . is widely used for heating and cooling, crystallizing, controlling heat of reaction, and other processes.

Used as a continuous mixer and chemical reaction vessel, this equipment offers many advantages:

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- a mixture of two or more reactants can be maintained, and heat of reaction closely controlled.
- reaction temperatures are achieved quickly, avoiding undesirable side reactions.
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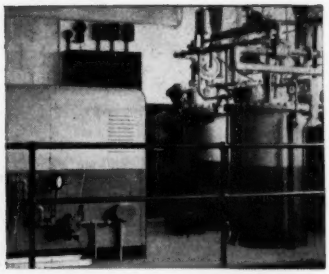
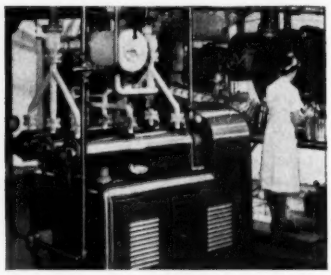


Processes Grease in 3 Minutes

VOTATOR Grease-making Apparatus cooks and cools ingredients for grease for this manufacturer in a 3-minute cycle. Time-consuming, labor-taking batch methods are eliminated. With continuous processing under precise, automatic control, grease uniformity is maintained easily. Moisture content and temperature are controlled accurately.



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A wide range of food products are sterilized and pasteurized at very high efficiency with VOTATOR Heat-transfer Apparatus. This equipment is particularly effective for materials that are heat sensitive, very viscous, or which undergo a physical change during the process. The entire cycle of heating to temperatures of 280° to 290°F, holding, then cooling the product to a predetermined temperature is accomplished continuously in seconds.

Want Information?

Girdler's Votator Division designs and builds complete plants for processing edible oil, food, and many other products; and supplies heat-transfer equipment for continuous processing of liquid and viscous materials. Write for Bulletin V-48. The Girdler Corporation, Votator Division, Louisville 1, Kentucky. District Offices: New York, Atlanta, Chicago and San Francisco.

Making Two into One

When the Bakelite Co.'s two sales departments merged into one (CW, June 14), it meant the culmination of a rapprochement that began back in 1939.

It was in that year that the Bakelite Company, a producer of phenolic and urea type plastics, became a part of the giant Union Carbide and Carbon Corp. as the result of a stock exchange arrangement.

But this was not Union Carbide's first interest in the growing plastic field. Its Carbide and Carbon Chemicals Co. already had a Plastics Department with a line of thermoplastic vinyls. Sooner or later these two interests would have to be coordinated and merged.

Under One Roof: The first step was taken in 1944. Carbide and Carbon's division was swung over to the Bakelite Co. and set up as a Thermoplastics Department. It now was handling polyethylene along with the vinyls.

GEORGE MILLER: He presides at a Bakelite wedding.

To keep things straight, Bakelite's original products were grouped into a Thermosetting Department. The temporality of this arrangement is shown by the fact that Thermosetting salesmen continued to handle Bakelite's thermoplastic polystyrene.

The next step, taken this month, has been to eliminate the departmental split and consolidate all Bakelite sales under one heading at a top-management level.

Double Duty: The man who will direct this unification program is Texas-accented George Miller, formerly the vice president and general sales manager of the Thermoplastics Department. His right-hand man at the sales helm will be Clint Blount, a Fort Worth high school classmate who had been Miller's opposite member on the Thermosetting Department.

Between them, they have the slow, painstaking job of retraining both sales forces into a cohesive whole wherein each salesman is fully informed on all Bakelite plastics.

Miller's plan is to deluge his men with information on the opposite group's products, followed by concentrated courses at home-office sales meetings. When this phase is completed, a cautious realignment of territories will be started. Ideally, men from the two former departments will be paired off in adjacent geographical areas so that they can work together until each has gained a maximum of the other man's experience.

Surprisingly, Bakelite's two sales forces had been duplicating their efforts on only about 20% of the customer contacts. This low figure now serves to accent the magnitude of Miller's retraining job. But then, no marriage, not even of sales departments, is all heavenly bliss. Says realistic Miller, echoing advice often given to newlyweds: "The first year will be the toughest."

Faltering Fleet

The flags will fly and the tugboats will whistle, and away from her berth will slip the pride of American mariners. But the maiden voyage week after next of the new superliner United States will provide just a temporary lift for the sagging spirit of the U.S. merchant fleet.

International competition for the world's ocean-going freight has regained its sharp accent after a temporary post-Korean lull. The American fleet, beset by high costs and obsolete vessels, is slipping behind in the race.

The extent of this trend can be noted by the increasingly frequent announcements from the Maritime Administration concerning the return of Government-owned ships to inactive service. These are the vessels which make up the elastic portion of the U.S. merchant fleet. When American bottoms are insufficient to handle the bulk of mutual security and military cargoes, ex-"moth ball" ships are pressed into service. On the other hand, as privately-owned space becomes avail-

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"Dad, how do they get things like *medicine* and *tires* from COAL?"

NO wonder Junior's science lesson sets him to dreaming—and to dreaming up questions like that for dad! For the chapter on modern chemistry is more exciting than the story of Aladdin's Lamp. Indeed, the wondrous lamp never provided as many things for good living as the valuable chemicals derived from *coal.*

Today, these important coal chemicals—such as benzene, pyridine, phenol, and phthalic anhydride—are the basic "building block" chemicals from which industry creates your plastics, dyes, medicines, synthetic fibers and dozens of other products which help maintain America's industrial supremacy.

More and more manufacturers are calling upon Pittsburgh Coke & Chemical for their coal chemicals. For, as a *basic* and *integrated* producer, we control every step of their production, from coal to finished chemicals. The result? Assured maximum quality of product and a dependable continuity of supply.

When you see the Pittsburgh Coke & Chemical trademark, remember that it represents a growing family of useful basic chemicals and related products which serve the nation's industry and agriculture.

Alkyl methyl pyridinium chloride
Benzene meta, para-Cresol ortho-Cresol
Naphthalene Phenol Phthalic Anhydride
alpha-Picoline beta, gamma-Picoline
Pyridine Sodium Cyanide
Toluene Xylene Xylenol

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Life Begins at $25,000

According to a survey made by *Sales Management* magazine, your chances, if you are a salesman, of hitting the stratospheric income brackets rise rapidly once you are safely past $25,000.

Of those that have made the grade . . . . .

19%	earn	$25,000	to	$29,999
29%	earn	30,000	to	39,999
20%	earn	40,000	to	49,999
21%	earn	50,000	to	74,999
7%	earn	75,000	to	99,999
4%		earn over		$100,000

The poll was based on 1950 salaries, bonuses and commissions paid to sales executives who were among the officials mentioned in proxy notices on file with the SEC.

The list of 275 executives was a rough sampling of all industries, to say the least, but now-famous high earners among the chemical process firms include Heyden's Remensnyder ($95,141) and Mead, Johnson & Co.'s Johnson ($84,873).

Top honors in the industry for those polled, however, go to Procter & Gamble men: v.p. of sales T. J. Wood ($162,311) and, close behind, v.p. of advertising H. J. Morgens ($159,626).

able because of reduced international trade or increased foreign competition, the rubber-band fleet contracts.

Down Grade: During May this contraction amounted to 140 ships, of which 139 were government owned. This left an active merchant fleet of 1,724 vessels. The 1,271 portion of this group which is privately owned includes 778 dry cargo ships, 447 tankers, and 46 combination passenger and cargo carriers.

The 139 ships which were returned to inactive service bring the total of such vessels up to 1,626. The returning ships can be put into "moth balls" —a permanent lay-up that requires extensive rehabilitation—or "fleet custody status" from which they can be readied for sea practically overnight.

Government-owned ships on an active status are handled by the National Shipping Authority, the Maritime Administration's present version of the war-time War Shipping Administration. Most of them are actually operated by private steamship lines under general agency agreements or charters.

Rough Weather Ahead: Another symptom of continuing troubles for the U.S. merchant fleet can be found in the comparative activities in foreign and domestic shipyards. Around 700 vessels are being built abroad, while only 116 are being worked on in this country, including the new liner United States.

Of these, twenty-seven are for foreign registry, thirty-nine for the U.S. Government, and eighteen for the Great Lakes trade. This doesn't leave many to transfuse life into the ailing American overseas fleet.

The impact of this situation on the future of defense-needed American mariners has been clearly stated by outspoken Hans Isbrandtsen, president of the globe-girdling Isbrandtsen Lines. His warning: "European and Japanese shipyards have been . . . turning out an ever-increasing number of modern, fast motor vessels with the latest innovations and technical advancements.

"The entry of these vessels upon the trade routes of the world is being

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facts you may want to know about—

Mallinckrodt

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Inorganic products

Precision processing

Since its founding in 1867, Mallinckrodt has concentrated its attention on the quantity production of fine *inorganic* and *organic* chemicals in standard and custom grades. It now supplies some 1500 products, for industrial, photographic, analytical and medicinal uses.

Mallinckrodt is one of the nation's leading producers of synthetic theophylline and phenobarbital, and is a major manufacturer of ether for anesthesia, cyclopropane, natural and synthetic alkaloids, and organic iodine compounds such as Urokon.® Mallinckrodt also manufactures an extensive line of metallic soaps, such as aluminum, calcium, magnesium and zinc stearates, for industrial purposes.

Typical of its inorganic manufactures are the chemicals required for the production of fluorescent lamp and television tube phosphors, such as silicic acid, calcium phosphate, calcium carbonate, and magnesium oxide. Mallinckrodt's "Standard Luminescent" grade of these and other products has won wide acceptance in the electronic industry.

Mallinckrodt has long been a prime producer of mercury salts, bismuth salts, silver salts and iodides.

Mallinckrodt chemists and production men have demonstrated special talents for producing to unusual chemical and physical specifications, in tonnage quantities.

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felt increasingly by us. So we can hold our own, it is necessary for us to be able to replace our ships when they get obsolete, and to keep abreast all of the time. If we deliberately do not, then losing the trade is no one's fault but our own."

Isbrandtsen claims that high operating costs and high taxes prevent his group from moving ahead with the times. And the existence of Uncle Sam's fast obsoleting rubber-band fleet does nothing to solve this dangerous problem of the future.

Fabric vs Fiber

"What we need are two distinct types of selling for the newer synthetic fibers," says American Cyanamid's C. W. Bendigo. In a blunt speech to the Textile Salesmen's Association at New York, Bendigo urged that the present emphasis on fiber identification be restricted to the sales approach used for textile mill customers.

The general public is getting totally confused by manufacturers' claims based on 100% formulations of their products. The consumer will rarely see such finished materials, and it would be impossible for him to forecast fabric performance merely from a breakdown of fiber content shown on the garment label.

Therefore, says Bendigo, with so many synthetics coming on the market, it is essential that the public be sold on the performance of a finished fabric and not on the techniques used by experts in developing the blend of several natural and synthetic fibers.

•

Wind Speed: A third dimension to price forecasting was proposed by Du Pont's chemical purchasing agent, deceptively soft-spoken Lin Bailey, during his talk to the Chemical Market Research Association (*CW, June 14*). He felt that purchasing agents, in making such forecasts, should present to management a price figure based only on current economic conditions, allowing the economists and crystal-gazers to apply corrective factors reflecting economy-wide trends. Otherwise, the careful study of a single commodity could be negated by superimposing a poorly-informed guess on boom or bust.

•

Back to Life: For the first time since before World War II, a private barge line will soon be operating between St. Louis and Omaha on the Missouri River. A group of Houston businessmen plans to reactivate the Sioux City-New Orleans Barge Line Co., using two shallow draft towboats now being built at a Houston shipyard.

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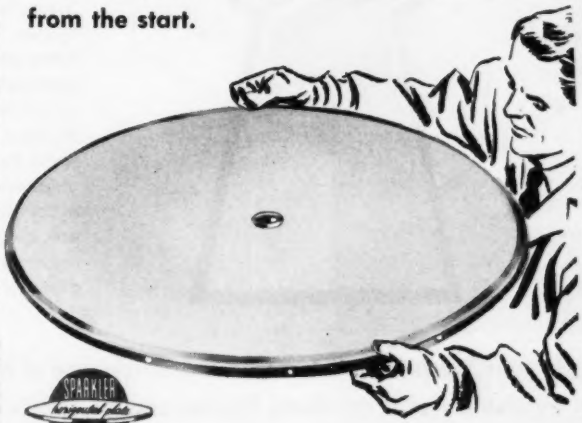
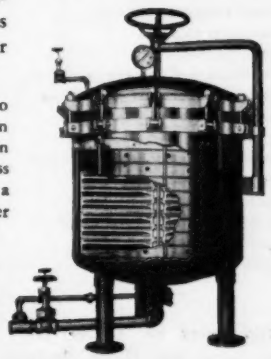
SPARKLER FILTERS

Designed for maximum pre-coat economy. Only a thin pre-coat cake is necessary to assure brilliant clarity of the filtrate right from the start.



Sparkler horizontal plates permit the filter media to be floated onto the plate and deposited with gravity into a cake of uniform thickness and uniform density even though the first pre-coat is very thin. This saves considerable time and Filter Aid in pre-coating.



Since no pressure is needed to hold this thin pre-coat cake in position it is possible to begin filtering operation with less pressure which results in a cake of less density and greater flow rate.

For personal service on your filtering problems, address correspondence to Mr. Eric Anderson

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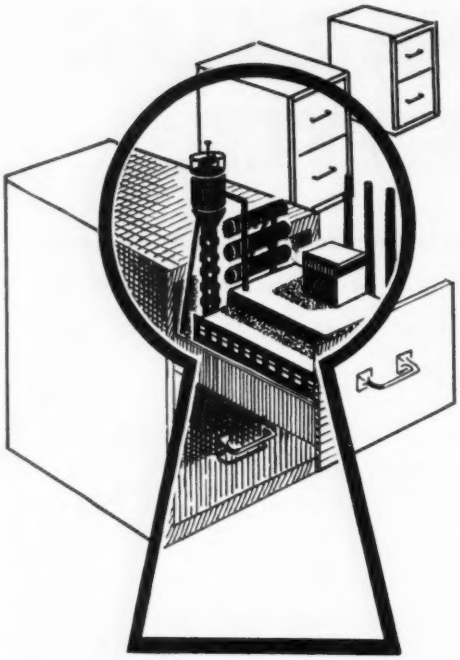

What do we know about your business?

The Harte files contain detailed records of nonconfidential processes served by the Harte System. There, carefully catalogued, is the Harte experience—the research and application that has developed into the valuable Harte engineering "know-how". Millions of dollars and considerable time are spent yearly in duplicating development and engineering that have already been accomplished. New problems in one industry are, quite often, solved by knowledge of solutions to similar problems in vastly different industries.

If your business is listed here the storehouse of knowledge available under the Harte System can be applied to your project.

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Starch—corn, potato and wheat
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Vitamin recovery
Synthetic detergents—sulphonation products
Benzene hexachloride—Lindane
Salt recovery and purification
Potash recovery and purification
Copper sulphate
Clay processing
Mixed fertilizer plants
Super phosphate fertilizer plants
Granulation fertilizer plants
Paper mills
Insecticide plants
Hydrochloric acid
Nitric acid
Soda ash—lime-soda process
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Lime and cement
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SPECIALTIES . .

Sixth Division for CSMA

Formation of a new Automotive Chemicals division highlighted last week's meeting of the Chemical Specialties Manufacturers Association in Boston.

Over 500 members and guests attended the organization's 38th midyear congress, saw customers and suppliers, got the last word on: aerosols—50 million of them, including glass ones; insecticide vaporizers; carnauba wax; bar detergents.

Spritely youth was contrasted with solid age in Boston last week at the 38th annual midyear meeting of the Chemical Specialties Manufacturers Assn.

The fast growing CSMA spawned a new Automotive Chemicals division, sixth segment set up to deal with specific product problems, and showed an all around push and drive that seemed a bit apart from the staid, just-a-bit faded dignity of the Boston Sheraton-Plaza.

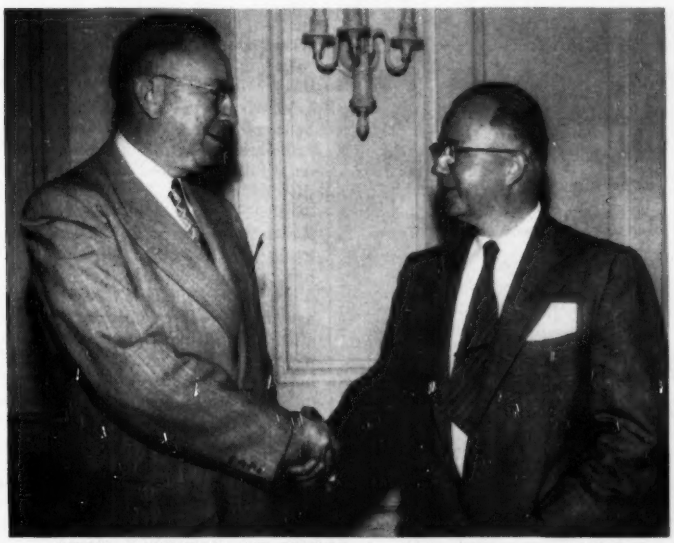
Not at all dampened by the humidity and the high-eighty heat, over 500 members and close to half a hundred guests sat in on some 60 speeches and panels, lunched in the revivifying coolness of the Plaza's Grand Ballroom, and met old friends, customers, and suppliers at more than a score of open houses held Monday night.

Old Hand at the Head: Division chairman for the new automotives section is A. E. "Al" Moore, for thirty years connected with the auto specialties at R. M. Hollingshead. He'll be working with vice chairman J. M. "Mike" Kimmel of Aeropak, Inc. J. T. "Jack" Hohnstine, Boyle-Midway; N. J. Gothard, Sinclair Refining, and Ralph Cowin of Standard Oil of Ohio make up the rest of the administrative committee.

Well over 100 members attended the initial meeting of the new unit. After organizational talks by CSMA president Clarence L. Weirich and secretary H. W. Hamilton, Moore recounted how the motorists' (there's about 55 million of them now) demands for specialties have changed since the 1920's ("only saddlesoap survives"). J. J. Crawford, Federal Supply Service, New York, pointed out the huge and virtually untouched market for auto supplies in the government.

Keep 'em Busy: Numerous meetings kept the average specialties man hopping; to get to all of importance took some tight scheduling. Some of the top points of the meeting:

- Aerosols are still a zooming business—50 million units may move this



CSMA's HAMILTON AND MOORE: An old hand for a new division.

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You may find many economical uses for these containers. They're sturdy enough for shipping, attractive enough for a sales and display package, these containers are available in a wide variety of sizes and shapes. Standard color is white. Write for prices and samples.

Available in nine sizes, ranging from 1 pint to 5 gals., with covers tight-fitting. (Not recommended for shipping liquids.)

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Eliminate variables — immediate delivery. Now available in quantity.

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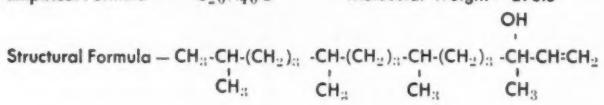

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Test	*Range*	*Usual*
Boiling point (0.1 mm pressure)	125-135°C	125-127°C
Boiling point (0.2 mm pressure)	140-150°C	140-142°C
Density @ 15 C	0.843-0.844	0.8434
Refractive index	1.4545-1.4555	1.4548

Delivery: Immediate; F.O.B. New York or Holland, Michigan.

PRICES:

1-5 kg.	12¢ per gram
5-10 kg.	10¢ per gram
10 kg. or over	8¢ per gram

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year, with shaving creams, touch-up paints, hair lacquers the hot items. The glass aerosol is a new angle, and new valves open possibilities for pressure packaging new products.

• Wax polish formulators caught the sad news that the price on Brazilian carnauba probably won't drop (*see p. 57*).

• Insecticide producers and makers of vaporizers got the word: Vaporizers are fine aids for pest control, but they're far from kill-alls, a point advertisers better note. Emphasized: Good sanitation is a must for effective vaporizer use.

• For disinfectant and sanitizer makers, a symposium on the selection of a test method for germicide evaluation pointed up the obsolesence of phenol coefficient ratings systems for newer germ killers, underlined the need for a more universally applicable method of evaluation.

• Soap and detergent makers received the story on a milled detergent bar for use in fresh and sea water, made on full scale soap-manufacturing equipment. General Aniline & Film produced the bar, using a tallow soap base, with wetting agents, foaming aids, and perfumes.

For Finer Wines

A new and improved fining agent, Fessler Compound, designed to eliminate trace amounts of copper and iron has just received a year's probationary approval from California's Dept. of Public Health for industry-wide winery use. Future possibilities for the agent: Application in production of other fermented beverages, pickled foods, and acids (like lactic) where contamination is a problem.

Wine chemist J. H. Fessler, after whom the compound is named, has been working on the problem of metal contamination in his Berkeley Yeast Laboratory since 1936. Such contamination often resulted in wine spoilage due to clouding. Principal offender was first thought to be iron, was later shown to involve copper as well. Only traces of copper (1/50 the amount of iron) were troublesome.

Iron causes clouding in winery storage tanks before shipment, copper after the wine has matured. Thus, wine perfectly clear at the time of bottling often turns cloudy on the retailer's or consumer's shelves. To insure against spoilage in maturity, vintners found that wine had to be kept entirely free of copper.

And that's where Fessler's Compound, capable of selectively extracting copper or iron or both, finds its value.

SPECIALTIES . . . . .

Clear Solution: The increasing size and mechanization of winery bottling operations has upped the need for a process to eliminate this non-microbial spoilage. Stainless steel and glass-lined process equipment were tried in the hope of eliminating metal contamination. Another widely used approach centered on a German method of blue-fining (involving potassium ferrocyanide). But the new equipment was expensive, and didn't solve the problem; the blue-fining process required a lengthy settling time and close supervision.

Fessler Compound, a brown, creamy complex of potassium ferrocyanide, cuprous hydroxide, and citric acid, eliminates these drawbacks. It is claimed to easily reduce copper concentration to 0.00 ppm., doesn't alter the composition or taste of wine in any way, can be filtered immediately, and entails no danger of over-fining —no difficulties resulted when as much as 10 times the recommended quantity of FC was used.

Fessler Compound has another advantage: low price. Based on the average requirement of 2 gal. of Compound per 1000 gal. of wine, treatment costs about 5-7¢ per gal.

FC is manufactured and sold by Cuvinex Co., San Francisco, at pound prices ranging from $2.00 in 50 gal. returnable polyethylene-lined drums to $2.75 in non-returnable cans. Already over 100,000 gal. of wine have been successfully test-treated with Fessler Compound, and with every vintner in the world a potential customer, Cuvinex faces a brilliant, unclouded future.

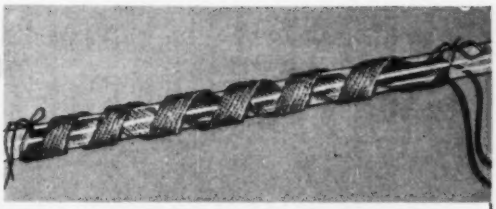
Chlorophyll for All

A major squabble in the mushrooming chlorophyll business was avoided last week. The Colgate-Palmolive-Peet Co. withdrew its suit challenging the validity of the Rystan Co.'s (Mt. Vernon, N. Y.) patent on the green stuff, and took a license to market chlorophyll toothpaste and mouthwash.

The licensing of Colgate was part of a general move to permit formulators to use Rystan's patents. Well over a dozen toothpaste and mouthwash makers, including Whitehall Pharmacal (Kolynos), Zonite Products (Forhans), Craig-Martin and Walgreen have been granted licenses.

Chlorophyll-containing products have been appearing on the market at such a high rate that it has been difficult to keep track of them. As of last week, chlorophyllins were being applied in the manufacture of at least 94 different preparations (not all under Rystan's patents).

Use Electrothermal HEATING TAPES to Solve Innumerable Heating Problems in your Laboratory, Pilot Plant or Production Line



Electrothermal heating tapes are constructed of fabric bands of resistance wire and temperature-resisting glass yarn. Their flexibility and elasticity permits their use on vessels of any size or shape. Simply wind the tape around the body to be heated, connect the lead-in wires to a Powerstat or other temperature control unit and you get constant, controlled heat wherever needed.

Flexible **Convenient** **Safe**

Electrothermal heating tape is available in three designs: uninsulated, insulated on one side and insulated on both sides.

Cat. No.	Design	Length, Cm.	Width mm.	Watts at 230 V	Amps.	Each
HT.101	Uninsulated	90	25	100	0-8	9.65
HT.102	"	125	64	250	1-5	12.25
HT.103	"	150	76	450	2-3	16.65
HT.104	"	180	89	500	2-6	19.25
HT.201	Insulated one side	90	25	100	0-8	11.40
HT.202	"	125	64	250	1-5	14.90
HT.203	"	150	76	450	2-3	20.15
HT.204	"	180	89	500	2-6	22.95
HT.301	Insulated both sides	90	25	100	0-8	14.70
HT.302	"	125	64	250	1-5	18.75
HT.303	"	150	76	450	2-3	26.45
HT.304	"	180	89	500	2-6	29.40

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A broad new field of utility opens for applications of STB, a new and powerful reducing agent, at a welcome low cost. Highly soluble in amines, STB absorbs excess diborane gas quantitatively, scrubbing the explosive from effluent gases. It also reduces carbon dioxide to sodium formate, aldehydes and ketones to alcohols, etc., in non-aqueous solution.

KBH_4 (potassium borohydride) is a high-purity, non hygroscopic, water-soluble reducing agent for aldehydes and ketones. Aqueous solutions can be stabilized up to 50° C, permitting reductions which are sluggish or incomplete to be forced. KBH_4 is expected to be cheaper than sodium borohydride on a reducing equivalent basis. Research quantities are available for evaluation.

Metal Hydrides welcomes technical correspondence relating to these new reducing agents, with a view to assisting in the development of further applications.

METAL HYDRIDES INC

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SPECIALTIES . . . . . .

Product	NUMBER High Pressure
Space insecticides	656,599
Residual insecticides — roach and ant sprays, etc.	
Mothproofers	
Room deodorants	
Pigmented and metallic paints	
Clear plastic sprays	
Other household products—waxes, insect repellents, water repellent, rug shampoo, etc.	
Personal products—shampoos, shaving lather, perfumes, personal deodorants, sun tan oil, hair lacquer, etc.	
Miscellaneous products—Christmas novelties, dog sprays, mildew preventives, medicinals, lubricants, ignition spray, antistatic spray, etc.	
TOTAL	656,599

Aerosol Accounting

An example of a fast growing undertaking progressive in every department from sales to accounting is the aerosol business. Now the aerosol makers and fillers have begun an industry-wide survey to keep closer tabs on just where they stand sales- and production-wise.

The first check has just been completed, and a resumé of the findings has been tabled (*see above*). The results, as well as a description of the general polling setup, were presented last week to the Chemical Specialties Manufacturers Assn. in Boston.

About 60% of the aerosol fillers quizzed sent in their figures; they are estimated to do about 80% of the total business. This three-fifths, though, turned out a tidy 34,184,150 units.

Space insecticides topped the list as far as quantity went; the 15,528,810 de-bugging units more than doubled the total of the next largest classification, room deodorants (7,286,809). Personal products—shaving lather, perfumes, shampoos, and the like—required well over 3½ million cans, and the total shown doesn't include figures from the maker of Rise, leading aero-

SPECIALTIES. . . . . OF UNITS PACKED		
Twelve Ounces	Six Ounces and Less	Total
14,308,106	564,105	15,528,810
985,970		985,970
804,030		804,030
3,526,254	3,760,555	7,286,809
1,743,732	36,926	1,780,658
952,188		952,188
218,787		218,787
1,043,066	2,606,330	3,649,396
1,896,292	1,081,210	2,977,502
25,478,425	8,049,126	34,184,150

sol-dispensed shaving lather. (Mennen and Colgate will shortly join the competition for lather sales.)

The survey is similar in some ways to the Soap and Glycerine Assn.'s well known tabulation on soap and detergent production. The questionnaires are prepared and mailed out by the CSMA's aerosol division. The reply envelopes, however, are addressed directly to the accounting firm of Ernst and Ernst (New York) which is the sole firm to see the replies. E and E tabulates the returns, and reports only the totals to the CSMA office.

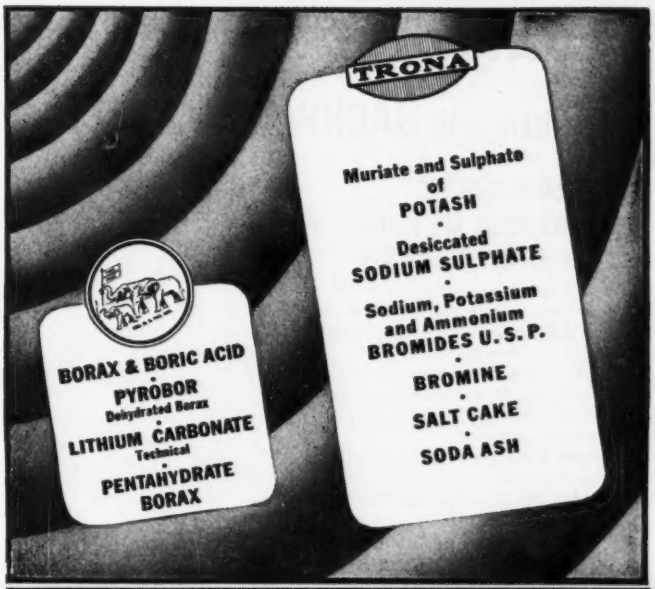
The 60% replies on the initial survey are deemed very encouraging by the Assn., which plans to make the check annually. At least one other division of the CSMA, the insecticide section, has shown interest in the survey, and may make a similar study.

•

More Bleach: Charlotte, N.C. plant of the Chlorox Chemical Co. has gone into volume production. Liquid bleach and disinfectant are produced in the 30,000 sq. ft., $1½ million plant.

•

Squeeze-on Insecticide: A plastic insecticide and fungicide container, designed to provide a bellows-like means for dispersing gardening dusts, is be-



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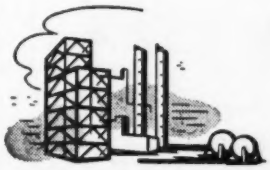

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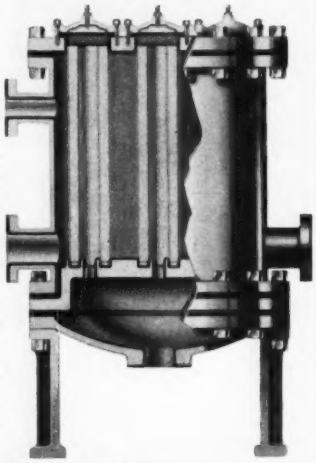

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SPECIALTIES. . . . .

ing used by the Bonide Chemical Co. (Chicago) for its products.

•

Titanium-based Duller: A new titanium based dulling agent, for rayon and acetate fabrics, tabbed Dextrol Duller #3925, has been developed by Dexter Chemical Corp. (New York).

•

Easy on the Eye: OpH is a new eye lotion introduced by Winthrop-Stearns (New York). The new product, containing 0.08% of the Winthrop-Stearn drug Neo-Synephrine hydrochloride, plus zinc sulfate and boric acid, is sold in 10 cc bottles with a self-contained eye-dropper.

•

Stockton Plant: Best Fertilizers Co. has purchased a 100-acre site just outside Stockton, Calif., for a new $1 million fertilizer plant.

•

Southern Plastics Plant: The Tupper Corp. and Tupperware Home Parties, Inc., makers of polyethylene plastic products, have just purchased a 1000-acre tract outside Orlando, Fla., will build a 100,000 sq. ft., $750,000 plant there in the near future.

•

Charcoal Cuts Burning: Addition of charcoal to dilute mixtures of parathion cuts the tendency of that organophosphate to burn or damage the young foliage on apple trees, the New York Agriculture Experiment station says.

•

Leaf Stripper: The Pennsylvania Salt Manufacturing Co. (Tacoma, Wash.) has introduced a new chlorate type cotton defoliant, called Penco De-Fol-Ate. It is devised for air spray use, is claimed to contain no boron and to contain a fire-suppressant. Sold in 100-pound fiber drums through Pennsalt's Tacoma and Philadelphia offices.

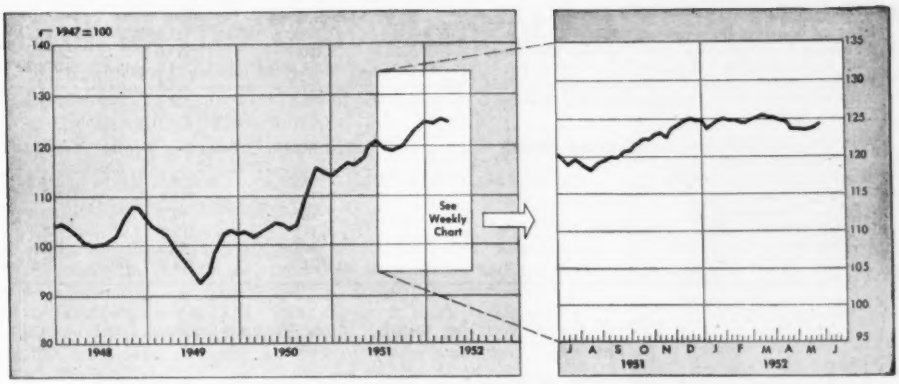
•

Mathieson Acquisition: The Mathieson Chemical Corp. (Baltimore, Md.) has just purchased the fertilizer facilities of the Temple Cotton Oil Co., North Little Rock, Ark. Purchase price was not revealed, although the 10-acre property was recently appraised at about $700,000. The plant is near Mathieson's present facilities in Little Rock.

PICTURES IN THIS ISSUE:

Cover (top) & p. 31 — Reni Photo; Cover (center) & p. 41 — Ben Fasman Photo; Cover (bottom) — Burns Photo; p. 19 — Natl. Film Board; p. 22 — Stanley McDonald; p. 27 — Harris & Ewing; p. 35 — Amas Carr, Sunkist Photo; p. 43 —Lionel Crawford, McGraw-Hill.

MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

MARKET LETTER

Though chemical markets news is still emanating from the nation's Capitol, industry is making it. Decontrol, anti-control sentiment blobbled when sulfuric acid users met with NPA last week.

A substantial majority of the Sulfuric Acid Industry Advisory Committee argued for revocation of NPA's Order M-94, which controls distribution of the strategic acid.

But some members want the order to continue. Reason: The committee admits it will be tough meeting the 1955 anticipated sulfuric acid requirements (19.5 million tons).

A few suggested a compromise: Suspend M-94, continue the reporting provisions. NPA is not indicating what its decision may be, but chances are the sulfuric acid distribution order will be around for some time.

And in Washington, too, International Materials Conference boosters are heaving a sigh of relief. The Senate voted to restore the government's authority to allocate scarce U.S. materials and to take part in free-world-wide allocations programs.

IMC foes are unhappy, say the international group doesn't do right by Uncle Sam.

OPS has been relatively quiet of late. Reports indicate it will remain so—until Congress winds up "controls" legislation.

Then look for a spate of new OPS actions. They're bound to come.

But OPS is still very much around. Effective this week polyvinyl chloride resins are sporting a new ceiling price of 38¢/pound. Only one producer is selling at a lower ceiling. Explanation: He passed up the 2¢/pound hike a year and a half ago, was just experimenting at the time.

Naphthenic acid is probably next in line to shed its allocations controls. Of the four chemical items still being sat on by NPA, naphthenic acid this week is fulfilling a prime requirement for "decontrol": increasing supply, decreasing demand. Good bet: NPA action will come within the next few weeks.

Here's the future outlook for the other three commodities still requiring allocation authorization:

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Industries Output Index (1947=100)	119.0	121.4(r)	121.5
Bituminous Coal Production (Daily Average, 1000 Tons)	1,250.0	1,555.0	1,628.0
Steel Ingot Production (Thousand Tons)	255.0 (est)	254.0 (actual)	2,063.0
Wholesale Prices—Chemicals and Allied Products (1926=100)	104.0	104.8	111.3
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	241.5	236.5	235.6

(r): revised

MONTHLY INDICATORS—WHOLESALE PRICES (1947-49=100)	Latest Month	Preceding Month	Year Ago
Chemicals and Allied Products	104.0	104.8	111.3
Chemicals (Industrial)	114.6	116.8	121.2
Drugs and Pharmaceuticals	92.5	92.7	95.6
Fertilizer Materials	111.5	109.8	105.3
Oils and Fats	46.0	42.6	103.6
Paint and Paint Materials	107.3	108.0	109.5

- Polyethylene. Will be number two to be stricken from the list.
- Methylene chloride. No immediate hope for "free" purchasing.
- Thiokol. All but an infinitesimal amount goes to top-secret defense needs, so you can forget about any easing "for the duration."

A healthy customer in the aerosol market is the U.S. Navy (which buys for all services). About 5 million low-pressure insecticidal units (12-oz. cans) have been purchased in the last sixteen months ($2.5 millions worth).

Price per unit has dropped from 61¢ to today's 50-51¢—quite a saving for the government which is currently taking about 400,000 units a month.

There's a rosy tint in tin's supply/demand picture—at least for this year. With the nation consuming about 53 thousand tons annually, it is estimated that imports for 1952 will total more than 75 thousand tons.

The Reconstruction Finance Corp., which now buys all the tin coming into the country, may soon turn that chore back to private industry.

Third quarter applications to export refined sulfur and sulfuric acid must be submitted to OIT next month; fourth quarter, in October. Filing periods apply to all export license applications for refined sulfur, all grades of sulfuric acid but not for crude sulfur.

The mixed fertilizer industry is being squeezed, wants relief. Representatives last week told OPS they must have higher ceilings to offset recently authorized freight increases. They claim that the higher transportation costs add 3-4% to the present ceilings.

On the other side of the ocean, German basic chemical producers are howling, too; say high fixed manufacturing costs prevent them from meeting price cuts by "foreign" competoitors. Down in production are coal-tar colors, caustic soda, hydrochloric acid, acetaldehyde.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending June 16, 1952

	Change	New Price		Change	New Price
UP					
Glycerin, crude, saponification, 88%, to refiners, tks, dlvd.	$.02	$.24	Oil, castor, No. 1, Brazilian	$.005	$.265
			Shellac, lemon, No. 1., bgs.	.01	.33
DOWN					
Acid, cresylic, imp., 75%, drms., exwhse., per gal.	.25	.85	Naphthalene, clude, imp.	.0025	.0525

All prices per pound unless quantity is stated

¿Adios to the U.S. Market?

Carnauba wax prices will not be lower, as demanded by price-conscious U.S. consumers and importers. That's the word from the Brazilian Trade Bureau.

But importers say present prices are unrealistic, that Brazil hasn't sold all its last crop, that "European" demand represents U.S. purchases in soft currency.

Carnauba wax users this week are not too happy about the prospect of continued high prices for carnauba. Producers of synthetic waxes and other substitutes for carnauba are wearing wider grins. And carnauba importers are sizzling.

Cause of these varied emotions is the word that the Brazilian Government which, through the Banco do Brasil, controls the price and export of this most-prized vegetable wax, doesn't see the necessity for lowering prices. This was made plain by the statements of José Bettencourt Machado, assistant director of the Brazilian Government Trade Bureau, before the Waxes & Floor Finishes Division of the Chemical Specialties Manufacturers Association in Boston last week.

Machado, speaking to a group which uses the hard, high-melting carnauba in its formulations when it can afford to, expressed his Government's concern for maintaining the high quality of carnauba exports. He enumerated reasons for variations in wax batches—among them, changes in Brazilian technology, and the American practice of using inflexible formulations. He said Brazil has been trying to improve quality by establishing official standards and inspection, by instructing producers in approved production methods.

He also suggested that rather than continue to try to develop suitable synthetic substitutes for carnauba, U. S. manufacturers invest capital in Brazilian industrialization. His point: Better extraction methods would mean uniformity, supply would increase, and prices would decrease.

Another View: Wax importers, however, don't see the situation in the same light. They think that Brazilian Government's support of carnauba price has just about ruined the market for the material, and that if the price were lowered, there would be no surplus in Brazil such as exists from last year's crop—some 3,500 tons.

At the meeting, a representative of of the American Wax Importers and Refiners Association read a letter which that Association had mailed to the Banco do Brasil on May 21. This letter implored against a finance bill calling for higher prices, pointed out that there is a surplus, and said that although the outlets for carnauba exceed supply, it is not being sold because the price is too high in comparison with other substitute waxes.

Pegged Prices: Mr. Machado is unconvinced that Brazil will be unable to move all the carnauba wax it can produce at the price the country deems necessary for the economic welfare of Northern Brazil. He pointed to increased consumption by countries other than the United States as an indication of the ready market for the material, which every one is willing to admit has qualities that can't be found in other waxes. But he also bemoaned some of the transactions in buying and selling carnauba that violate the Government regulations.

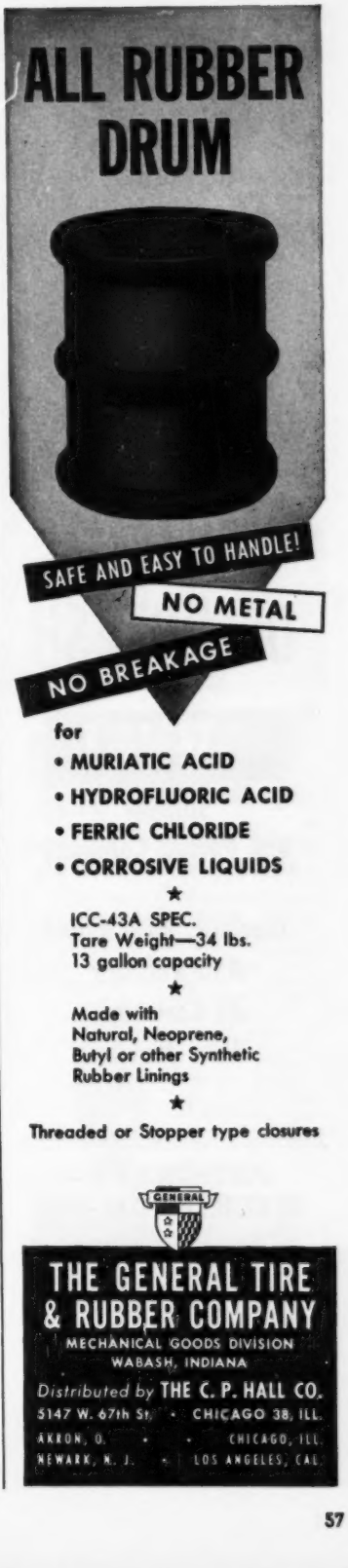
The Brazilian carnauba support is not unlike our own agricultural products support. A producer can borrow up to 80% of the value of his crop from the official bank, and still retain an interest in the wax, or he can sell it at a stated price.

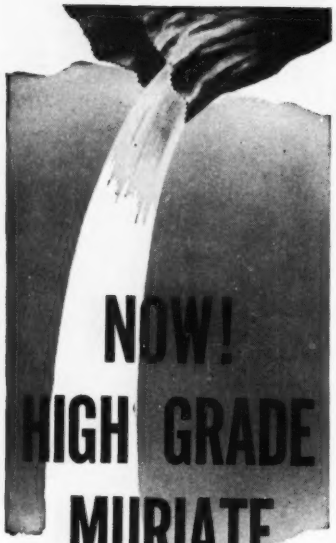
Marmalade Deals: But when the floor price set by the bank is too high for U.S. buyers, local entrepeneurs have many dodges to circumvent the regulations. These are referred to as "marmalade deals," and result in a U.S. importer's getting the material cheaper than the official price, and the exporter getting more than he could for the material officially. Among the schemes:

1. Putting a higher grade wax in a bag marked for a lower grade.
2. Putting 100 kilos, instead of the standard 90, in a bag.
3. Shipping out material as a partial credit, and getting the difference in the U.S.

In all these deals, the exporter gets the difference (or part of it) for the better grade, extra amount, or the percentage still owed, in dollars in the U.S., which, on the black market, brings more Brazilian currency than the official exchange rate permits.

Brazilian officials point out rightly that it takes more than one to make such an arrangement. Americans who have been party to this agree, say it





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takes three: a Brazilian exporter, an American importer (for example), and an official or clerk to close his eyes at No. 3 N.C. carnauba masquerading as chalky, or 100 kilos in a 90 kilo bag.

Of course, there are other ways of getting around the high prices, and one of these is responsible for the apparent increase of exports to European countries which the Brazilian Government claims. It involves U.S. importers' buying carnauba in soft European currency, such as Swedish crowns. These can be bought by Americans at a discount. The crowns are then exchanged at the official rate for Brazilian money. Many lots of wax, listed in Brazilian records as going to one European country, enjoy a Cook's tour of European ports before ending up in New York harbor.

These financial circumventions of what importers call stifling control are not likely to end either. For many importers are outspoken in their determination to save the market for carnauba by such means.

And the Brazilians seem adamant in holding to the new and higher floor prices that have just gone into effect despite the Wax Importers' plea (all f.o.b., Brazil): $1.19, for No. 1 yellow; $1.14, No. 2 yellow; $1.07, No. 2 NC; $1.02, No. 3 NC; $.92, No. 3 chalky. They are, at least, if Machado reflects the official attitude.

US DISTRIBUTION OF MAJOR PESTICIDES—CROP YEARS 1949-50, 1950-51
(Percentage of combined total of each material's estimated consumption)

Pesticides	New England and Middle Atlantic States	Southern States	North Central States	Rocky Mountain and Pacific Coast States
BENZENE HEXACHLORIDE	2	66	3	29
CALCIUM ARSENATE	5	92	1	2
COPPER COMPOUNDS	38	24	31	7
2,4-D	2	16	53	29
DDT	14	43	18	25
DITHIOCARBAMATES (synthetic fungicides)	35	30	31	4
GRAIN FUMIGANTS (liquid)	5	33	49	13
LEAD ARSENATE	45	21	27	7
PARATHION	16	32	20	32
ROTENONE	50	24	17	9
SULFUR (conditioned)	13	57	5	25

Pesticide Pattern

U.S. farmers in the South and in the North Central states are the best pesticides customers. Almost two thirds of the whopping (about 1 billion pounds a year) total output of technical pesticidal chemicals is being tossed, sprayed and dusted across the food basket of the nation—from N. Dakota to Texas, from Michigan to Florida.

This has been brought out in an "all hands to the task" summary of the regional uses of pesticides just compiled by the U.S. Department of Agriculture.

The over-all survey was made under sponsorship of Production and Marketing State Committees and Insular Area Offices by technical specialists from state land grant colleges, state experiment stations, extension service, representatives of other USDA agencies and other competent persons in each state. Members of the pesticides industry were also behind the move which should help manufacturers pinpoint future markets.

On the basis of eleven typical major pesticides (insecticides, fungicides, herbicides) estimated to have been used during the last two crop years (1949-50, 1950-51), the regional use study shows that nearly 40% of the total was used in the Southern states, a little over 23% in the North Central states, slightly over 20% in the New England and Middle Atlantic states and somewhat under 17% in the Rocky Mountain and Pacific states.

Distribution of these eleven major pesticides expressed as percentage of the combined total quantities of each material estimated to have been used in the two crop years is shown in the accompanying table.

DDT, related chlorinated pesticides producers have few raw material worries now. Supply picture: chlorine, adequate; benzene, favorable; sulfuric acid, no problem—has high priority for DDT use.

PRODUCTION . . .

Three to Make Ready

Three companies are ready to crash an estimated $30 million market with processes based on domestic mica.

They'll split the mineral up into tiny particles, then use paper making techniques to turn out continuous sheets of mica.

Electrical equipment makers will be the first big customers. But the flakes can be molded by usual means and there's a chance the products may find their way into other uses.

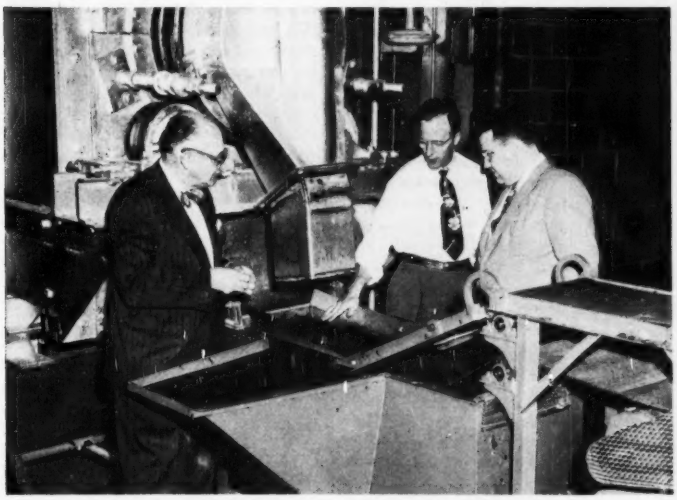
Meeting the heavy requirements of the electrical industry for mica has never been much of a trick for any country with: (a) an abundant supply of raw materials and (b) a force of 70,000 skilled workers who are willing to toil long hours for practically nothing. Having (a) but not (b), the U.S. has had to depend largely on foreign mica, last year imported $22 million. India, with both (a) and (b), has been its chief source of supply.

Now, however, three companies—General Electric, Samica Corp., and Integrated Mica—are ready to cash in on new processes which give promise of setting up a domestic mica industry that is self-subsistent. Although they vary slightly in method, all three processes split mica into tiny particles, then by an adaptation of paper-making techniques, turn out continuous, uniform sheets of straight mica. Besides eliminating the need for a lot of costly labor, they turn out what appears to be a more versatile product.

There has been some question as to the type of mica products with which the new material will compete. But the three companies are confident that they will go any place the present mica products go and many places they can't.

They Like Mica: Putting an accurate figure on the lush market the three are trying to crash is difficult, but they agree that $30 million a year is, if anything, on the conservative side. The first ones that figure to benefit from the new products are the electrical equipment manufacturers; they like mica's resistance to electrical current, heat and pressure. But mica is a tough, inert mineral, resists acids (except hydrofluoric), and there is a distinct possibility the products may find applications outside the electrical field. The mica flakes can be molded by usual methods and Moses Heyman (president, Integrated Mica) has patented a protective coating (U.S.P. 2,568,004) based on his "integrated" mica flakes. He says that the method may find use in lining equipment for chemical processing.

Mica products are classed as either block or built-up. Block mica is made by splitting, cutting or stamping pieces from a solid sheet or block. The big-



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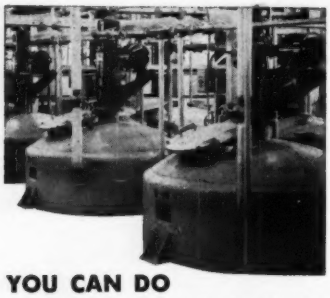

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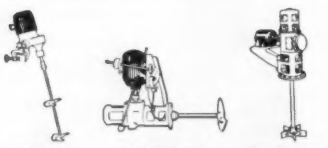

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gest market, however, (an estimated 85% of the total) is for built-up mica which is simply a sheet of large mica flakes held together by a resinous substance. And that's where the expensive labor comes in, for making the flakes ("splittings") from a block of mica is a delicate operation done entirely by hand.

Making the sheets themselves calls for a lot of labor, too, although big strides have been made toward mechanizing the process. Moreover, the use of large flakes involves certain disadvantages inherent in the product, like lack of uniform thickness and lack of flexibility.

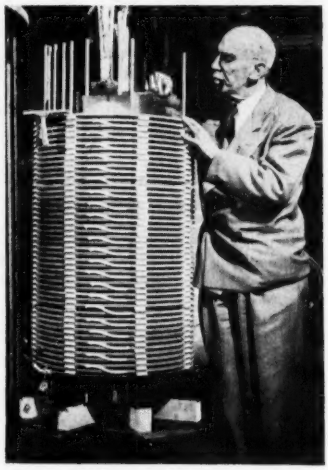
Enter G.E.: Along with several other firms, G.E. was well aware of the situation. Then, during the '40s, a company representative, on his return from a trip through Europe, brought in a glowing report on a paper-like mica material. With a good description of the product but no idea of how to make it, researchers went to work, eventually emerged with the present process. But in the meantime, Samica Corp. had been formed to commercialize the European process and G.E. promptly protected itself by obtaining a license from Samica.

At present, G.E. feels it is leading the pack with its product, mica mat, and has no intention of losing its spot. It has spent a million dollars installing a machine at Conshocton (Ohio), and will put in more when the market is ready to take it. Although the product hasn't been priced yet, salesmen figure that in three to five years, mica mat will be able to compete pricewise with any mica product on the market.

G.E. doesn't say whether it is actually using the Samica process, its own or a combination. It says merely that mica is heated under carefully controlled conditions. That causes it to flake off into small particles without losing its electrical or insulating properties. Next it is processed in a liquid medium to produce a slurry of flakes whose dimensions are in the same ratio as those of conventional mica splittings and whose surfaces have been activated. The particles are then fed to a machine (similar to ones used in the paper industry) to form the sheets of mica mat.

Another Version: Samica Corp. (Schenectady, N.Y.) expects to be turning out its version of the product before the year is out. It has a plant in Rutland (Vt.).

Formed last year by Mica Insulator,* Samica will use the processes developed by France's late Jaques Bardet. In this country, Bardet's patent (U.S.P. 2,549,880) lists several alternate methods for splitting the mica. One likely method involves heating the mica and adding hydrochloric acid and sodium carbonate. The reaction liberates carbon dioxide which in turn splits the mica. While waiting for Samica's plant to go into production in the last quarter of the year, Mica Insulator is importing the material, selling it under the tradename, Isomica.



INSPECTION: G.E.'s mica mat fills the bill on large transformer.

Synthetic and Natural: The third entry into the mica derby, Integrated Mica, is currently in semi-commercial production in a plant in Woodmere (N.Y.). President Heyman, with a long standing interest in mica, developed a mechanical splitting (U.S. P. 2,405,576 and 2,490,129), thinks he has an edge over the other processes because he can start with clean scrap rather than the high-grade domestic mica required by both G.E. and Samica. Furthermore, Heyman is turning out small quantities of sheets made from the Bureau of Mines' synthetic mica.*

Heyman also has devoted considerable time to the development of his protective coating technique. He reports that it is possible to spray his flakes on any clean metal surface. Because of the difficulty involved in getting the metal sufficiently clean, however, he suggests it may be more profitable to spray the surface first with a thin film of plastic. As a final coat, he recommends filling the interstices of the mica layer with lacquer. He points out that the mica absorbs the lacquer and that the coating will

* Other participants: Prosilis S. A. (Paris), Swiss Insulating Works, Breitenbach, Switzerland.

* Developed by the Bureau's Robert Hatch, now being made in its Norris (Tenn.) lab.

stand up long after the lacquer has worn away.

Government, Too: G.E., Samica and Integrated Mica aren't the only ones to attempt a paper-like mica product of course. Apparently, the Bureau of Standards and the Naval Research Laboratory (in a joint venture) were on the right track when they developed their process for making mica by the use of paper making techniques (*CIW, Mar. 31, '51*). When the commercial interest was disclosed, however, the two government bureaus immediately dropped the idea of any further work on it.

In any event, the new products don't mean an end to our reliance on foreign sources of supply. Only last week, the NPA pointed up the critical nature of the mica situation, called it "one of the difficult problems under the defense mobilization program." It added that the General Services Administration had launched a program to encourage the discovery, development and production of mica from domestic sources.

And experts are quick to point out that it will be some time before the impact of the new products can be accurately measured. It will be a long-range replacement, at best. But the companies involved seem convinced that they have the solution.

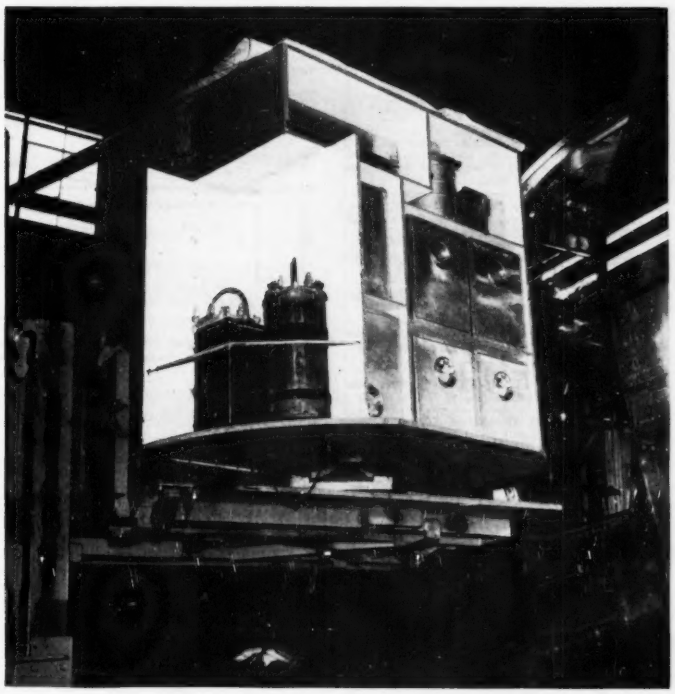
Handling Speed Up

A compartmentalized, revolving pallet proved to be a simple but profitable solution to a materials handling operation at a Montreal airport. It cut down the number of steps from ten to three, speeded up the procedure, freed loading equipment for other work. Now Canadian chemical firms are looking at the idea as an answer to their own problems.

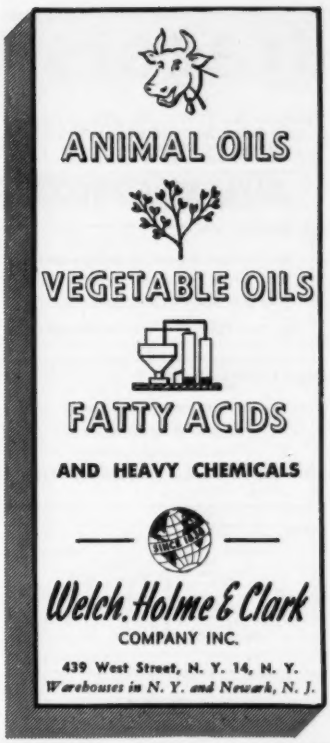
Major features of the pallet are a platform (4 ft. by 5 ft.) which accommodates the forks of a lift truck and two compartmentalized, back-to-back removable boxes that revolve on casters about a pole in the center of the platform. At the airport it is used to shuttle commissary equipment between the aircraft galleys and the caterer and wash-up stand.

But chemical and chemical process firms in the area are showing a lot of interest in the pallet. They think it will prove useful wherever there's volume movement of small, odd-shaped items, especially those that are handled in reuseable containers.

Harold Worley, materials handling expert for C.I.L., for example, says the pallets will have a direct application in his company's paint and varnish division. The main line of paints, of course, are palletized in the conven-



ROTATING PALLETS: Compartmentalized for efficiency.



(His business paper . . . of course)

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W4576 CHEMICAL WEEK
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EQUIPMENT--used-surplus

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***Autoclaves, tile lnd; 3375 gal. First Machinery** Corp., 157 Hudson St., N.Y. 13, N.Y.

***Calenders, New Rubber Calenders, 6x12", Johnson** Joints, 7½ HP motor, Complete. Eagle Industries, 108 Washington St., NYC.

***Centrifugal 36"x40", Bird, Continuous, Consolidated** Products, 18 Park Row, N.Y. 38, N.Y.

***Centrifugals, Bird 48"; Rub. Covered. First Machinery,** 157 Hudson St., N.Y. 13, N.Y.

***Colloid Mill Charlotte No. 20, used only a few** hours. Bargain in price. L. Stanhope, Rosemont, Penna.

***Dryer; P.&S. 76' L; 13' w; S.S. belt. First Machinery** Corp, 157 Hudson St., N.Y. 13, N.Y.

***Dryer, Vacuum Shelf, 13 shelves 59"x78", Condenser** and pump. Consolidated Products, 18 Park Row, N.Y. 38, N.Y. BArclay 7-0600.

***Dryer, Vacuum shelf, 20 shelves, 59x78", pump,** cond., 6. Consolidated Prod., 18 Pk. Row, NY 38.

***Dryers, 2 Blvk 32x90 dble. drum, SS accessories,** comp. Eagle Industries, 108 Washington St., NYC.

***Evaporator, (five body quad) and 12' spray dryer,** both type 304 s/s, 220/440 v., explosion-proof, new, never set up. FS-4429, Chemical Week.

***Evaporators; Sextuple Eff. 58,200 sq. ft. First** Machinery Corp., 157 Hudson St., N.Y. 13.

***Filter Press, 30"x30", aluminum, 45 chambers,** Consolidated Products, 18 Park Row, N.Y. 38.

***Filter Press, 30"x30", iron, Shriner and Johnson,** 35-40 chambers. Consolidated Products, 18 Park Row, N.Y. 38, N.Y., Barclay 7-0600.

For Sale

***Filter Presses, all sizes and types. Process Industries,** 305 Powell St., Brooklyn 12, N.Y.

***Granulator, Allis Chalmers, Ball, 4'6"x7', iron** lined. Used 100 hours. Consolidated Products, 18 Park Row, New York 38, N.Y. BA 7-0600.

***Kettles, S/S, 300 gal. and 200 gal., 100#, WP.** Consolidated Products, 18 Park Row, N.Y. 38.

***Mill, New Rubber Mills, 6x12, 6x14, 6x16"; Johnson** Joints, Complete. Eagle Industries, 108 Washington St., NYC.

***Mills, Raymond #5047 high side roller, ea.** w/two 50 h.p. 3/60/2200 V motors, piping (2). Consolidated Products, 18 Park Row, N.Y. 38.

***Mills, Traylor tube, 5'x22', 5'x20', 4'6"x18'6",** 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, New York 38, N.Y.

***Mixer, Lab, BP Vacuum, 7½ gal. jktd, MD. Com**plete. Eagle Industries, 108 Washington St., NYC.

***Mixers, horiz. ribbon, 14'x7'6"x6', jktd., 450 cu.** ft. Consolidated Products, 18 Park Row, N.Y. 38.

***Mixers, 700 gal. Turbo, Simplex, jktd. (2) Con**solidated Products, 18 Park Row, N.Y. 38.

***Pebble Mills; 8'x8', Porcelain lined. First Machin**ery Corp., 157 Hudson St., N.Y. 13, N.Y.

***Pebble Mills 10 gal. to 800 gal., porcelain lined,** 20. Consolidated Products, 18 Park Row, N.Y. 38.

***Reactor—30 gal. 347 SS, complete unit, never** used. Equipment Clearing House, 289 10 St., Bklyn 15.

***Tablet Press, No. 5½, Colton, 3" maximum.** Consolidated Products, 18 Park Row, N.Y. 38.

***Tanks—Glass lined steel storage, 3,000 gal. cap.** Complete fittings, outlet valve, manhead, agitator. Briggs & Turivas, 141 W. Jackson, Chicago 4, Ill.

***Tanks, SS, from 180-10000 gal, jktd, storage,** agtd. Eagle Industries, 108 Washington St., NYC.

***Tanks, S.S. Storage & Mixing, all capacities.** Process Industries, 305 Powell St., Brooklyn 12.

***Tanks, 2 10000 gal. SS Storage, excel. Cond.** Eagle Industries, 108 Washington St., NYC.

***Tanks, 6500 gal. capacity, steel storage, recov**ered from dismantled tank cars, coiled & non-coiled. Marshall Railway Equipment Corp., 50 Church St., N.Y. 7, N.Y.

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CHEMICAL WEEK

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PRODUCTION . . . . . .

tional way, but less popular, specialized varieties present a problem in handling for time is lost in picking into cases.

At Sherwin-William's Montreal warehouses, engineers are working on a compartmentalized pallet. Larry Johannson, Montreal stockkeeper in charge of material handling, says that a pallet with shelving is being worked up to load house paint lines onto city delivery trucks. "As it is now," he says, "the driver loses a lot of time selecting the material when he makes a call. We'd rather have the boys in the warehouse do the segregating since the wage rate is four times lower than the cost of operating the truck."

EQUIPMENT . . . .

Constant-Level Device: D. E. Couch and Abner Brenner of the National Bureau of Standards have developed a compact and easily fabricated device to maintain constant liquid levels in laboratory apparatus. The NBS leveler consists of a small vertical tube fitted with water inlet and outlet tubes. A mercury valve is attached to a float in the tube and controls liquid level, opening and closing as the liquid in the system falls and rises.

•

Radiation Counter: The RCL Omniometer, a new all purpose instrument for measuring radiation, is now available from Radiation Counter Laboratories, Inc. (Skokie, Ill.). This unit may be employed with the several types of sensing elements now in general use such as Geiger, proportional, and scintillation counters. RCL claims that its device was designed primarily for laboratories requiring a simple and versatile detector at nominal cost.

•

Aluminum Tubing, Fittings: Parker Appliance Co. (Cleveland) is now producing a standard-stock line of aluminum tube fittings for industrial use. Included in the line are male and female connectors, elbows, tees, union and tube end reducer for ¼″, 5/16″, ⅜″ and ½″ outside tubing.

•

Pipe Supporter: A new Knapp universal pipe supporter, now being produced by Knapp Mills, Inc. (N.Y.), is designed to support large heating coils. It is made of Ferrolum lead-clad steel, is completely adjustable and is claimed to have the strength and rigidity of steel combined with the corrosion resistance of lead. Supporter cradles are available in two sizes to accommodate pipe diameters varying from 1″ to 2½″ o.d.

•

Kaylo Insulation Distributor: Allied Services, Inc. (Charleston, W.Va.) has been appointed distributor-applicator for Kaylo Heat Insulation by Owens-Illinois Glass Co.'s Kaylo Division. Kaylo's heat insulation line includes insulating block for flat surfaces, pipe and vessel insulation. The insulation is hydrous calcium silicate, said to be effective up to 1,200° F.

•

Eye Protection: American Optical Co. (Southbridge, Mass.) is now producing a new safety goggle featuring a transparent plastic frame and said to provide a broader field of vision. The new goggle can be worn directly over the eyes or over spectacles.

American Optical is also now offering a one-piece bi-colored safety lense designed for workers exposed to intense visible light, ultraviolet and infrared radiations. The new bi-colored lenses come in different shades and are beveled to fit metal or acetate spectacle goggles as well as cup-type goggles.

•

Rubber-Lining Technique: A new procedure for rubber-lining pipe, fittings and process equipment has been developed by La Favorite Rubber Manufacturing Co. (Paterson, N.J.). The company claims that, for the first time in industry, special designs of bent pipe and shapes can be lined with rubber without risk of processing failure.

•

Centralized Control: The Industrial Division of Minneapolis-Honeywell Regulator Co. (Philadelphia) has introduced its new multiple-burner Protect-O-Glo system designed for centralized safeguarding of 2 to 16 combustion equipment burners. The Protect-O-Glo system contains individual flame detecting relays for each burner to be used in conjunction with a photocell flame detector for oil-fired burners or a flame electrode detector on gas or gas-piloted oil-fired installations. The flame detector and relay circuit signals and shuts down the fuel supply in the event of flame failure at the burner.

•

Industrial Hand Pump: A new hand pump, designed to handle a variety of liquids, is now being offered by Tokheim Oil Tank and Pump Co. (Fort Wayne). This pump is recommended for use with acetates, alcohols, glycols, ketones, ethers and plasticizers and other liquids which standard pumps cannot normally handle. For handling caustic soda solution, a pump is furnished with a cast iron body Permolited on the inside to prevent corrosion. The standard model stands up to ammonia, creosote and petroleum products.

BOOKLETS . . . . . .

Chemicals

Nitrocellulose

11-p. technical booklet on the firm's new specialty nitrocellulose, SS Nitrocellulose, gives information on the solubility and uses of the compound. The solubility data is charted according to four variable factors—the viscosity of the compound, the effect of ethanol, the effect of diluent, and the effect of type of alcohol used; the applications studied include the use of the substance in heat-seal lacquers, aniline inks and as a shellac modifier. Hercules Powder Co., Wilmington, Del.

Plasticizers

21-p. technical data bulletin, designed to aid manufacturers in making a proper selection of plasticizers, reviews the typical properties, sales specifications, solubility or compatibility characteristics, and uses of the firm's line of plasticizers. The Dow Chemical Co., Midland, Mich.

Heat Seal Coatings

Data sheet devoted to heat seal coatings, describes a number of formulas designed for use on paper, glassine, aluminum foil and cellulose acetate. American Resinous Chemicals Corp., Peabody, Mass.

Metallic Stearates

Booklet describing revisions in specifications of many grades of metallic stearates; revisions include controls on purity and uniformity of the component fatty acids and extremely low limits of lead and arsenic. Booklet also lists entire line of company's metallic stearates. American Cyanamid Co., 30 Rockefeller Plaza, New York, N.Y.

Equipment

Vacuum Drying

24-p. catalog explaining procedures and equipment utilized in various methods of vacuum drying such as vacuum shelf drying, rotary vacuum drying, rotating vacuum drying and vacuum freeze-drying. The rotary vacuum dryers are described and diagrammed as to design and construction. Also included is a discussion of typical vacuum drying problems and their solutions. F. J. Stokes Machine Co., Philadelphia, Pa.

Stainless Steel

34-p. booklet discussing the use of stainless steel in the chemical process industries—in the manufacture of acids and other chemicals, plastics, dyes, soaps and pharmaceuticals. The booklet also gives information on the available forms of stainless steel, its fabrication, corrosion resistance and properties. Allegheny Ludlum Steel Corp., Pittsburgh, Pa.

Speedomax Recorders

48-p. catalog listing the firm's line of instruments for recording or control of temperature, speed and power, plus those recorders used for measuring such quantities as pH, daylight illumination, electrolytic conductivity, mechanical loads, etc. Leeds & Northrup Co., 4907 Stenton Ave., Philadelphia, Pa.

Graphitization

12-p. booklet discussing graphitization phenomena encountered in systems operated at elevated temperatures in the power and processing industries. This study presents explanations of the nature of graphitization, its cause, effects, and the corrective measures used to rehabilitate steam power systems. Edward Valves, Inc., East Chicago, Ind.

Scientific Glassware

12-p. illustrated brochure presenting data, specifications and prices on special scientific glassware, scintillating crystals, special chemicals and gases. Wakefield Industries, Inc., 5108 Grove St., Skokie, Ill.

Parr Oxygen Bomb Sulfur Apparatus

4-p. bulletin describing the purpose, applications, principle of operation, operating procedures and special uses of Parr oxygen bomb sulfur apparatus, intended for determining sulfur and other elements in solid or liquid combustible materials. Parr Instrument Co., Moline, Ill.

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